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WADC TECHNICAL REPORT 53-107
PART 2

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

PART 2 PHASE I TESTS

MICHAEL FREDERICK
EUGENE FORNARIO

NEWARK COLLEGE OF ENGINEERING

DECEMBER 1953

WRIGHT AIR DEVELOPMENT CENTER

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PART 2 PHASE I TESTS

MICHAEL FREDERICK
EUGENE FORNARIO

NEWARK COLLEGE OF ENGINEERING

DECEMBER 1953

ENVIRONMENTAL CRITERIA BRANCH
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WRIGHT AIR DEVELOPMENT CENTER
AIR RESEARCH AND DEVELOPMENT COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

FOREWORD

This is Part 2 of six parts of WADC TR 53-107 "Correlation of Temperature-Humidity Tests", prepared by the Newark College of Engineering under contract AF 33(616)-261. This contract was initiated and administered by the Environmental Criteria Branch, Wright Air Development Center under the project identified by Research and Development Order No. 560-87 "Determination of Climatic and Environmental Criteria, Requirements and Test Procedures".

The experimental work was carried out at the Newark College of Engineering by Mr. Eugene Fornario under the supervision of Professor Michael Frederick of the Chemical Engineering Department. Mr. J. R. Grimm was the WADC Project Engineer. Mr. C. W. Gerhardt of the Equipment Laboratory, Wright Air Development Center cooperated on this project.

ABSTRACT

Plastic and metal specimens were subjected to four different temperature-humidity tests selected by the Wright Air Development Center to establish the degree of correlation, deterioration effects and relative merits of these tests. The data and results of Phase I tests are described.

PUBLICATION REVIEW

The publication of this report does not constitute approval by the Air Force of the findings or the conclusions contained therein. It is published only for the exchange and stimulation of ideas.

FOR THE COMMANDER:

H A Boushey
H. A. BOUSHEY
Colonel, USAF
Director of Air Weapon Systems

TABLE OF CONTENTS

| | Page |
|--|------|
| Introduction v. v. . . . | xi |
| Section I Test Cycle and Facilities | 1 |
| Section II Test Specimens | 2 |
| Section III Removal Schedule | 5 |
| Section IV Measurement Procedures | 7 |
| Section V Calculations | 10 |
| Section VI Results | 16 |
| Section VII Conclusions and Discussion | 20 |
| Section VIII Recommendations | 22 |

LIST OF ILLUSTRATIONS

| | | Page |
|-----------|--|------|
| Figure 1 | Test Cycle | 93 |
| Figure 2 | Terminal Boards - Exposed Average Percent Weight Increase - Time | 94 |
| Figure 3 | Terminal Boards - Enclosed Average Percent Weight Increase - Time | 95 |
| Figure 4 | Phenolite - Exposed Average Percent Weight Increase - Time | 96 |
| Figure 5 | Phenolite - Enclosed Average Percent Weight Increase - Time | 97 |
| Figure 6 | Lucite - Exposed Average Percent Weight Increase - Time | 98 |
| Figure 7 | Terminal Boards - Exposed Log of the Resistance - Time | 99 |
| Figure 8 | Terminal Boards - Enclosed Log of the Resistance - Time | 100 |
| Figure 9 | Phenolite - Exposed Log of the Resistance - Time | 101 |
| Figure 10 | Phenolite - Enclosed Log of the Resistance - Time | 102 |
| Figure 11 | Steel - Exposed Weight Decrease Per Day - Time | 103 |
| Figure 12 | Al 24 S - Exposed Weight Increase Per Day - Time | 104 |
| Figure 13 | Al 52 S - Exposed Weight Increase Per Day - Time | 105 |
| Figure 14 | Al 52 S Bolted - Exposed Weight Increase Per Day - Time | 106 |
| Figure 15 | Steel after One Day Exposure | 107 |
| Figure 16 | Steel after Three Days Exposure | 107 |
| Figure 17 | Steel after Five Days Exposure | 108 |
| Figure 18 | Steel after Seven Days Exposure | 108 |

| | Page |
|--|------|
| Figure 19 Steel after Nine Days Exposure | 109 |
| Figure 20 Steel after Eleven Days Exposure | 109 |
| Figure 21 Steel after Thirteen Days Exposure | 110 |
| Figure 22 Steel after Fifteen Days Exposure | 110 |
| Figure 23 Steel after Removal of Corrosion | 111 |
| Figure 24 " " " " " | 111 |
| Figure 25 " " " " " | 112 |
| Figure 26 " " " " " | 112 |
| Figure 27 Bolted Al after Three Days Exposure | 113 |
| Figure 28 Bolted Al after Seven Days Exposure | 113 |
| Figure 29 Bolted Al after Eleven Days Exposure | 114 |
| Figure 30 Bolted Al after Fifteen Days Exposure | 114 |
| Figure 31 Enclosed Metals after One Day Exposure | 115 |
| Figure 32 Enclosed Metals after Three Days Exposure | 115 |
| Figure 33 Enclosed Metals after Five Days Exposure | 116 |
| Figure 34 Enclosed Metals after Seven Days Exposure | 116 |
| Figure 35 Enclosed Metals after Nine Days Exposure | 117 |
| Figure 36 Enclosed Metals after Eleven Days Exposure | 117 |
| Figure 37 Enclosed Metals after Thirteen Days Exposure | 118 |
| Figure 38 Enclosed Metals after Fifteen Days Exposure | 118 |

LIST OF TABLES

| | | Page |
|----------|--|------|
| Table 1 | Terminal Board - Test 1 Weight - Time | 23 |
| Table 2 | Terminal Board - Test 2 Weight - Time | 24 |
| Table 3 | Terminal Board - Test 1 Per Cent Weight Increase - Time | 25 |
| Table 4 | Terminal Board - Test 2 Per Cent Weight Increase - Time | 26 |
| Table 5 | Terminal Board - Test 1, 2 Average Per Cent Weight Increase - Time | 27 |
| Table 6 | Terminal Board - Test 1 & 2 Average Per Cent Weight Increase - Time | 28 |
| Table 7 | Phenolite - Test 1, 2 Dimensions | 29 |
| Table 8 | Phenolite - Test 1 Weight - Time | 30 |
| Table 9 | Phenolite - Test 2 Weight - Time | 31 |
| Table 10 | Phenolite - Test 1 Per Cent Weight Increase - Time | 32 |
| Table 11 | Phenolite - Test 2 Per Cent Weight Increase - Time | 33 |
| Table 12 | Phenolite - Test 1, 2 Average Per Cent Weight Increase - Time | 34 |
| Table 13 | Phenolite - Test 1 & 2 Average Per Cent Weight Increase - Time | 35 |
| Table 14 | Lucite - Test 1, 2 Dimensions | 36 |
| Table 15 | Lucite - Test 1 Weight - Time | 37 |

| | | Page |
|----------|--|-------|
| Table 16 | Lucite - Test 2 Weight - Time | 38 |
| Table 17 | Lucite - Test 1, 2 Per Cent Weight Increase - Time | 39 |
| Table 18 | Lucite - Test 1, 2 Average Per Cent Weight Increase - Time | 40 |
| Table 19 | Lucite - Test 1 & 2 Average Per Cent Weight Increase - Time | 41 |
| Table 20 | Terminal Board - Test 1 Resistance Measurements - Time | 42,43 |
| Table 21 | Terminal Board - Test 2 Resistance Measurements - Time | 44,45 |
| Table 22 | Terminal Board - Test 1 Calculated Resistance - Time | 46,47 |
| Table 23 | Terminal Board - Test 2 Calculated Resistance - Time | 48,49 |
| Table 24 | Terminal Board - Test 1, 2 Average of the Log Rx - Time | 50 |
| Table 25 | Terminal Board - Test 1 & 2 Average of the Log Rx - Time | 51 |
| Table 26 | Phenolite - Test 1 Resistance Measurements - Time | 52,53 |
| Table 27 | Phenolite - Test 2 Resistance Measurements - Time | 54,55 |
| Table 28 | Phenolite - Test 1 Calculated Resistance - Time | 56,57 |
| Table 29 | Phenolite - Test 2 Calculated Resistance - Time | 58,59 |
| Table 30 | Phenolite - Test 1, 2 Average of the Log Rx - Time | 60 |
| Table 31 | Phenolite - Test 1 & 2 Average of the Log Rx - Time | 61 |

| | | Page |
|----------|---|-------|
| Table 32 | Lucite - Test 1 Resistance Measurements - Time | 62,63 |
| Table 33 | Lucite - Test 2 Resistance Measurements - Time | 64,65 |
| Table 34 | Lucite - Test 1 Calculated Resistance - Time | 66 |
| Table 35 | Lucite - Test 2 Calculated Resistance - Time | 67 |
| Table 36 | Steel - Test 1 Dimensions | 68 |
| Table 37 | Steel - Test 1 Weight - Time | 69 |
| Table 38 | Steel - Test 1 Weight Decrease - Time | 70 |
| Table 39 | Steel - Test 2 Dimensions | 71 |
| Table 40 | Steel - Test 2 Weight - Time | 72 |
| Table 41 | Steel - Test 2 Weight Decrease - Time | 73 |
| Table 42 | Steel - Test 1 & 2 Weight Decrease Calculations - Time | 74 |
| Table 43 | Zinc Coated Steel - Test 1, 2 Dimensions | 75 |
| Table 44 | Zinc Coated Steel - Test 1, 2 Weight - Time | 76 |
| Table 45 | Zinc Coated Steel - Test 1, 2 Weight Increase - Time | 77 |
| Table 46 | Aluminum 24S - Test 1, 2 Dimensions | 78 |
| Table 47 | Aluminum 24S - Test 1, 2 Weight - Time | 79 |

| | Page |
|---|------|
| Table 48 Aluminum 24S - Test 1, 2 Weight Increase - Time | 80 |
| Table 49 Aluminum 24S - Test 1 & 2 Weight Increase Calculations - Time | 81 |
| Table 50 Aluminum 52S - Test 1, 2 Dimensions | 82 |
| Table 51 Aluminum 52S - Test 1, 2 Weight - Time | 83 |
| Table 52 Aluminum 52S - Test 1, 2 Weight Increase - Time | 84 |
| Table 53 Aluminum 52S - Test 1 & 2 Weight Increase Calculations - Time | 85 |
| Table 54 Aluminum 52S Bolted - Test 1, 2 Weight - Time | 86 |
| Table 55 Aluminum 52S Bolted - Test 1, 2 Weight Increase - Time | 87 |
| Table 56 Aluminum 52S Bolted - Test 1 & 2 Weight Increase Calculations - Time | 88 |
| Table 57 Controls - Test 1 & 2 Maximum Weight Increase | 89 |
| Table 58 Plastics - Test 1 & 2 Summary of Maximum Values of Per Cent Weight Increase and Log Resistance | 90 |
| Table 59 Metals - Test 1 & 2 Summary of Average Rate of Corrosion and Average Weight Change | 91 |
| Table 60 Metals - Test 1 & 2 Mean Values of Average Rates of Corrosion | 92 |

INTRODUCTION

The problems associated with the effects of humidity on USAF aeronautical and associated equipment are not new. Operation in tropical areas during World War II emphasized the need for design consideration against the degradation of equipment by moisture. Laboratory test procedures using various "humidity cycles" were incorporated into procurement documents in an effort to insure that satisfactory equipment would be procured. The first concentrated attempt within the USAF to consolidate and standardize the various test cycles was made in Specification 41065, "Equipment, General Specification for Environmental Test of", issued in December 1945. Specification 41065 has subsequently been superseded by Specification MIL-E-5272(USAF), "Environmental Testing, Aeronautical and Associated Equipment (General Specification For)", which formed the basis for the humidity test correlation program.

While Specification MIL-E-5272(USAF) has reduced the number of test "cycles" in use, Section 4.4, Humidity Tests, of that specification still contains three procedures. Questions have been repeatedly asked concerning these procedures, their use, and relative merits. Basic data, in the past, to answer such questions has been non-existent. This testing program was undertaken in an effort to provide answers to these questions and where possible to further the standardization effort.

The humidity test "cycles" selected for comparison included:

- a. Procedure I of Specification MIL-E-5272(USAF)
- b. Procedure III of Specification MIL-E-5272(USAF)
- c. Procedure I of Specification MIL-E-5272(USAF)
modified to a maximum temperature of 49°C (120°F).
- d. The Humidity Test Cycle for Electric and Electronic
Component Parts (MIL-STD-202).

Procedure II of Specification MIL-E-5272(USAF) was not included as it had been included in a previous program of this type,

The cycle for component parts was included in order that a determination could be made of its characteristics versus the characteristics of equipment cycles. This component cycle is the same as contained in MIL-STD-202, "Test Methods for Electronic and Electric Component Parts" with the low temperature and vibration steps deleted.

Of the four test phases selected, the data and results of Phase I tests are described in this report.

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

SECTION I TEST CYCLE AND FACILITIES

This report contains the results of Humidity Test Procedure I of Specification MIL-E-5272 (USAF) which was performed twice (Fig. 1).

The Phase I test cycle was as follows:

The temperatures in the chamber shall be raised from a temperature between 20° and 38° (68° to 100.4°F) to 71° (160°F) during a 2-hour period. The temperature of 71° (160°F) and a relative humidity of 95 percent shall be maintained during the next 6-hour period. During the following 16-hour period, the temperature in the chamber must drop at a uniform rate to 20° to 38° (68° to 100.4°F) which constitutes one cycle. The cycle shall be repeated a sufficient number of times to extend the total time of the test to 360 hours (15 cycles).

The testing cabinet was a Tenney Temperature Humidity Chamber, model TH-10. The inside dimensions were 22" wide, 19" deep and 48" high with five shelves of wire construction. Wet and dry-bulb thermoregulators controlled the wet and dry-bulb temperatures of the air being circulated within the chamber. A more detailed description of the cabinet, its construction, operation and performance is given in WADC TR 53-107 Pt 1.

SECTION II TEST SPECIMENS

The following test specimens were used:

A. Exposed specimens

1. Plastics

- a. Laminated Thermosetting
Grade LTSE2 (XX Phenolformaldehyde, black).
Commercial product used: Black XX - 301 Phenolite.
Size 1/8" x 4" x 2".
- b. Rigid Thermoplastic
Grade RTP-OS-2 (Plexiglass).
Commercial product used: Lucite.
Size 1/8" x 4" x 2".
- c. Terminal Boards
Molded bakelite barrier type boards with plated
brass terminals and screws. Six terminal type.
Commercial product use: Cinch Jones type
terminal boards. Six terminal type.
Size 3 1/4" long x 7/8" wide.

2. Metals

- a. Cold rolled steel panels, C-1008.
Size 1/16" x 4" x 2".
- b. Cold rolled steel panels, C-1008, which were
sino plated to a commercial thickness.
Size 1/16" x 4" x 2".
- c. Aluminum panels, 52S-O (good resistance).
Size 1/16" x 4" x 2".
- d. Aluminum panels, 24S-O (poor resistance).
Size 1/16" x 4" x 2".
- e. Aluminum bolted panels, 52S-O. The panels were
bolted with three brass machine screws (1/4" x 1/2"-
20 thread) and brass hexagon nuts (1/4" - 20 thread.)
Each specimen was fitted with:
 - (1) 1/4" brass washers
 - (2) 1/4" steel washers, cadmium plated to a commercial
thickness.
 - (3) 1/4" steel washers, tin plated to a commercial
thickness.

The bolted assembly is illustrated in Figure 11 of
WADC TR 53-107 Pt 1.

f. Harvel "612" coated cold rolled steel
panels, C-1008,
Size 1/16" x 4" x 2".

B. Enclosed Specimens

One each of the Phenolite, terminal board, steel and bolted aluminum specimens were enclosed in five pint size preservative type jars which were closed with a glass top. A 1/4" hole was drilled in the glass top to permit the humid air to enter during the testing period.

C. Control Specimens

Two specimens of each material were used as controls and kept in a humidity jar.

The following number of specimens were used during a phase test:

A. Plastics

- 1. Phenolite 12
 - a. exposed 5
 - b. enclosed 5
 - c. controls 2
- 2. Lucite 7
 - a. exposed 5
 - b. controls 2
- 3. Terminal Board 12
 - a. exposed 5
 - b. enclosed 5
 - c. controls 2

B. Metals

- 1. Steel 52
 - a. exposed 45
 - b. enclosed 5
 - c. controls 2

7

| | |
|----------------------------|----|
| 2. Steel, zinc coated . . | 23 |
| a. exposed | 21 |
| b. controls | 2 |
| 3. Aluminum, 52S | 23 |
| a. exposed | 21 |
| b. controls | 2 |
| 4. Aluminum, 24S | 23 |
| a. exposed | 21 |
| b. controls | 2 |
| 5. Aluminum bolted | 28 |
| a. exposed | 21 |
| b. enclosed | 5 |
| c. controls | 2 |
| 6. Harvel coated steel . | 23 |
| a. exposed | 21 |
| b. controls | 2 |

SECTION III REMOVAL SCHEDULE

The specimens were removed from the test chamber after the following days of exposure:

A. Exposed Specimens

1. Plastics

- a. Phenolite 1, 2, 3, 4, 5, 7, 11, 13, 15
- b. Lucite 1, 2, 3, 4, 5, 7, 11, 13, 15
- c. Terminal Boards . . . 1, 2, 3, 4, 5, 6, 7, 8
9, 10, 11, 12, 13, 14, 15

2. Metals

- a. Steel 1, 2, 3, 4, 5, 6, 7, 8
9, 10, 11, 12, 13, 14, 15
- b. Steel, zinc coated . 3, 5, 7, 9, 11, 13, 15
- c. Aluminum, 52S . . . 3, 5, 7, 9, 11, 13, 15
- d. Aluminum, 24S . . . 3, 5, 7, 9, 11, 13, 15
- e. Aluminum, 52S bolted 3, 5, 7, 9, 11, 13, 15
- f. Harvel coated steel. 3, 5, 7, 9, 11, 13, 15

- B. Enclosed Specimens 1, 2, 3, 4, 5, 6, 7, 8
9, 10, 11, 12, 13, 14, 15

- C. Control Specimens Same schedule as the exposed specimens.

All five of each kind of exposed plastic specimens were withdrawn according to the preceding schedule, tested and returned to the testing chamber.

Three of each of the exposed metal specimens and the Harvel coated steel were removed as indicated above, tested and discarded.

The enclosed specimens which were removed daily were returned to the chamber after testing.

The controls were tested on the same schedule as the exposed specimens and returned to the humidity jars.

SECTION IV MEASUREMENT PROCEDURES

The following measurements and observations were made:

A. Exposed Specimens

1. Plastics

a. Phenolite

- (1) Surface resistance
- (2) Weight increase
- (3) Photographs of marked physical changes.

b. Lucite

- (1) Surface resistance when in range of instrument
- (2) Weight increase
- (3) Photographs of marked physical changes.

c. Terminal Boards

- (1) Surface resistance
- (2) Weight increase
- (3) Photographs of marked physical changes.

2. Metals

a. Steel

- (1) Weight decrease after cleaning panel
- (2) Photographs before cleaning panel
- (3) Notation of physical changes and pitting.

b. Steel, zinc plated

- (1) Weight increase before cleaning panel
- (2) Weight decrease after cleaning panel
- (3) Photographs before cleaning panel
- (4) Notation of physical changes and pitting.

c. Aluminum, 52S

- (1) Weight increase
- (2) Photographs of panels
- (3) Notation of physical changes and pitting.

d. Aluminum, 24S

- (1) Weight increase
- (2) Photographs of panels
- (3) Notation of physical changes and pitting.

e. Aluminum bolted, 52S

- (1) Weight increase
- (2) Photographs of panels
- (3) Notation of physical appearance and pitting of
 - (a) panel
 - (b) washers
 - (c) nuts and bolts.

f. Marvel coated steel - qualitative observations as:

- (1) film adhesion
- (2) film softening
- (3) film cracking.

B. Enclosed Specimens

1. Phenolite - The same measurements as the exposed phenolite specimens.
2. Terminal Boards - The same measurements as the exposed terminal boards.
3. Steel
 - a. Photographs of panels
 - b. Notation of physical changes.

4. Aluminum Bolted, 528

- a. Photographs of panels
- b. Notations of physical appearance and pitting of
 - (1) panel
 - (2) washers
 - (3) nuts and bolts.

C. Control Specimens - The same measurements were made as on the exposed specimens.

D. Breather Jars - A check was kept on the jars containing the enclosed specimens for accumulation of any moisture during the test.

All electrical resistances were measured by using a Keithly Vacuum Tube Electrometer as a microammeter. With a shunt of 10^{12} ohms, the instrument was capable of determining resistances of the order of 10^{15} ohms. Details of the measurement are described in WADC TR 53-107 Pt 1.

All weighings were made on an analytical balance sensitive to 0.1 mg at full load. The qualitative tests made on Harvel coated steel are described in WADC TR 53-107 Pt 1.

The report WADC TR 53-107 Pt 1 also contains additional comments on the above procedures outlined.

SECTION V CALCULATIONS

The data taken was treated as follows:

A. Weight Change Data

1. Plastic

a. Procedure

- (1) The percent weight increase was computed from the final and initial weight of the specimen.
- (2) The daily average percent weight increase of each set of exposed, enclosed and control specimens was computed for each test run.
- (3) The average percent weight increase of each set for Phase I tests was calculated from the averages of Test 1 and Test 2.
- (4) The result obtained was then plotted as Percent Weight Increase versus Days Exposed. A smooth curve was then drawn through the points plotted. The curve drawn was determined visually to be the best fit for the data plotted.

b. Sample Calculation Exposed Terminal Board Data

- (1) Data from Table 1
Specimen No. 6
Weight of Specimen 34.9277 g 35.4085 g
Days Exposed 0 3

$$\begin{aligned} \% \text{ Weight Increase} &= \frac{35.4085 - 34.9277}{34.9277} \times 100 \\ &= 1.377 \end{aligned}$$

The percent weight increase calculated was tabulated in Table 3.

- (2) Data from Table 3
Days Exposed 3

| <u>Exposed Specimen</u> | <u>% Weight Increase</u> |
|-------------------------|--------------------------|
| No. 6 | 1.377 |
| " 7 | 1.347 |
| " 8 | 1.309 |
| " 9 | 1.451 |
| " 10 | 1.536 |
| | <u>1.404</u> Average |

The daily average percent weight increase calculated was tabulated in Table 5.

- (3) Data from Table 5
Exposed Specimens
Days Exposed 3

| | |
|--------------------------------------|---------------------|
| Average of Test 1, Specimens 6-10 | 1.404 % Weight Inc. |
| Average of Test 2, Specimens 18-21 | 1.407 |
| Average of Phase I Exposed Specimens | <u>1.4055</u> |

The average percent weight increase of Phase I calculated was tabulated in Table 6.

- (4) The data from Table 6 was plotted in Figure 2.

- c. The data on the enclosed Terminal Board, exposed Phenolite, enclosed Phenolite and exposed Lucite specimens was treated similarly.

2. Metal

a. Procedure

- (1) The weight decrease was computed from the initial and final weight of the exposed specimen.
- (2) The daily average weight decrease for Phase I was computed from the individual results of Tests 1 and 2.

- (3) The daily average rate decrease was computed by dividing the average weight decrease by the number of days exposed. Surface area was considered to be constant since the average deviation of the surface area was much smaller than that of the weight decrease. The rate calculated as weight decrease per day differs from the rate usually calculated as weight change per unit area per day by a proportionality constant.
- (4) The result obtained was plotted on semi-logarithmic graphing paper as Rate versus Days Exposed. A smooth curve was drawn through the points plotted. The curve drawn was determined visually to be the best fit for the data plotted.
- (5) The average weight change of the metal specimen was computed by multiplying the average rate, as read off from the above graphs, by the corresponding number of days exposed.
- (6) The mean value of the average rate was obtained by dividing the area under the graph by the length of the interval. The area under the curve was obtained by dividing it into a number of narrow trapezoids, computing the area of each trapezoid and summing these up for the interval considered.

**b.b. Sample Calculation
Exposed Steel Data**

- (1) Data from Table 37
Specimen No. X 12
Days Exposed 3

| | |
|-----------------|-----------------|
| Initial Weight | 61.5678 g |
| Final Weight | 61.5213 g |
| Weight Decrease | <u>0.0465 g</u> |

The weight decrease calculated was tabulated in Table 38.

- (2) Data from Tables 38 and 41
Days Exposed 3

| Exposed Specimens | Weight Decrease |
|-------------------|-------------------------|
| No. X12 | 0.0465 g |
| " X13 | 0.0473 " |
| " X14 | 0.0342 " |
| " X64 | 0.0178 " |
| " X65 | 0.0172 " |
| " X66 | 0.0252 " |
| | <u>0.0314 g</u> Average |

The daily average weight decrease for Phase I calculated was tabulated in Table 42 column a.

- (3) Data from Table 42 column a
Days Exposed 3

$$\text{Average Rate} = \frac{0.0314}{3} = 0.0105 \text{ g/day}$$

The average rate decrease calculated was tabulated in Table 42 column b.

- (4) The data from Table 42 column b was plotted in Figure 11 on four cycle semi-logarithmic graphing paper.

- (5) Data from Figure 11
Steel
Days Exposed 5

$$\begin{aligned} \text{Average Rate} &= 0.011 \text{ g/day} \\ \text{Average Weight Change} &= 5 \times 0.011 = .055 \text{ g.} \end{aligned}$$

The data read off the graph in Figure 11 and the average weight changes computed were tabulated in Table 59.

(6) Data from Figure 11
Steel

| Interval | Mean Height | Interval | Area of Trapezoid |
|----------|-------------|-------------|-------------------|
| 0-4 days | 2.92 inches | 1.00 inches | 2.92 sq. in. |
| 4-8 " | 2.38 " | 1.00 " | 2.38 " " |
| 8-12 " | 1.86 " | 1.00 " | 1.86 " " |
| 12-15 " | 1.48 " | 0.75 " | 1.11 " " |
| | | 3.75 inches | 8.27 sq. in. |

$$\text{Mean Ordinate} = \frac{8.27}{3.75} = 2.21 \text{ inches}$$

Scaled against the rate axis, 2.21 inches = 0.0077 g/day
The mean value of the average rates was tabulated in Table 60.

- c. Data on the exposed Aluminum 24S, exposed Aluminum 52S and exposed Aluminum 52S Bolted specimens was treated similarly. The weight changes of the zinc coated steel specimens were considered as being too small and inaccurate for plotting.

B. Resistance Measurement Data

1. Procedure

- a. The resistance was calculated from the readings taken by means of the equation

$$R_x = R_s \times \frac{E_o - E}{E}$$

where R_x = resistance of the specimen in ohms

R_s = resistance of the shunt in ohms

E = electrometer reading in volts

E_o = applied voltage in volts

- b. From the logarithm of the calculated resistance of each specimen, the daily mean value was computed for each test.
- c. The mean value of the logarithm of the resistance for Phase I was calculated from the average values of Tests 1 and 2.

- d. The results from c were plotted against the Days Exposed. A smooth curve was then drawn through the points plotted. The curve drawn was determined visually to be the best fit for the data plotted.

2. Sample Calculation
Exposed Terminal Board Data

- a. Data from Table 20
Specimen No. 6
Days Exposed 3

$E = 7.0$ volts

$E_0 = 25$ volts

$R_0 = 10^7$ ohms

$$R_x = 10^7 \times \frac{25 - 7.0}{7.0} = 2.57 \times 10^7 \text{ ohms}$$

The resistance calculated was tabulated in Table 22.

- b. Data from Table 22
Days Exposed 3

| Specimen | R_x | $\log R_x$ |
|----------|--------------------|-----------------------|
| No. 6 | 2.57×10^7 | 7.410 |
| " 7 | 2.40×10^7 | 8.380 |
| " 8 | 2.57×10^7 | 7.410 |
| " 9 | 2.12×10^7 | 7.326 |
| " 10 | 1.78×10^7 | 7.250 |
| | | <u>7.5552</u> Average |

The daily average $\log R_x$ calculated was tabulated in Table 24.

- c. Data from Table 24
Days Exposed 3

| | |
|---|---------------|
| Test 1 Average $\log R_x$ of Specimens 6-10 | 7.5552 |
| Test 2 " " " " " 18-22 | 7.1064 |
| Average $\log R_x$ for Phase I | <u>7.3308</u> |

The daily average $\log R_x$ of Phase I calculated was tabulated in Table 25.

- d. The data in Table 25 was plotted in Figure 7.

3. The data on the enclosed Terminal Board, exposed Phenolite and enclosed Phenolite specimens was treated similarly. Since the data on the exposed Lucite specimens was incomplete, at times being outside the range of the instrument used, the results were not plotted.

SECTION VI RESULTS

The following changes were noted during the two Phase I tests of 15 days each:

A. Exposed Specimens

1. Plastics

- a. Phenolite
No variation in the appearance of these specimens was noted.
- b. Lucite
These specimens became opaque on the fifth day of exposure.
- c. Terminal Board
These specimens showed evidence of surface weathering and powdering.

2. Metal

Corrosion initially developed at edges of specimens. Attack on the surface started at local points and spread uniformly from these areas.

- a. Steel
A slight general corrosion occurred.
The rust was smooth and fine.
No measureable pitting occurred.
- b. Steel, Zinc Plated
No significant corrosion occurred.
- c. Aluminum, 52S
The corrosion was very slight.
- d. Aluminum, 24S
The corrosion was very slight.
- e. Aluminum Bolted, 52S
 - 1. Aluminum Panel
Corrosion of surface was very slight.
 - 2. Washers
 - (a) Brass
General corrosion occurred on the washers.

(b) Steel, Tin Plated
Tarnish developed on the washers

(c) Steel, Cadmium Plated
Localized attack occurred on the cadmium plating, which produced point failures and exposed the steel to corrosion.

3. Brass Bolts and Nuts
Initial and heaviest corrosion of the bolted specimens occurred on these parts.

f. Harvel Coated Steel
The properties and appearance of the coating were practically unaltered during the period of exposure.

B. Enclosed Specimens.

1. Plastics

a. Phenolite
No variation in the appearance of these specimens was noted during the tests.

b. Terminal Board
No variation in the appearance of the terminal boards was noted.

2. Metals

a. Steel
The corrosion of the enclosed steel specimens was similar to the exposed steel specimens but not as severe.

b. Aluminum Bolted, 52S
The attack on the enclosed bolted aluminum specimens was similar to the exposed bolted aluminum specimens but not as severe.

C. Control Specimens
The control specimens were practically unaffected during the period of the test.

D. Breather Jars.
No condensation of moisture in these containers was observed.

Photographs of exposed steel, enclosed steel, exposed bolted aluminum and enclosed bolted aluminum, taken on removal from the chamber were included in this report to illustrate the course of corrosion during the Phase I tests. A set of photographs of exposed steel specimens after cleaning was also included to complete the record.

Examination of the appended tables and graphs shows the following results:

A. Exposed Specimens

1. Plastics

- a. The percent moisture absorbed by the exposed plastic specimens increases logarithmically with time and tends to level off toward the end of the test period. The order of decreasing percent weight change of the specimens as determined by the maximum percent weight changes is phenolite, terminal board and lucite.
- b. The surface resistance decreases with time. The greatest change occurs within the first five days of exposure, and levels off after that time. The drop in surface resistance of the terminal board specimens was greater than that of the phenolite.
- c. The surface resistance data of the lucite was considered as being unreliable for graphing since the measurements were made at the extreme range of the instrument. The computed resistances are of the order of 10^{12} to 10^{15} ohms. At times the resistance of the lucite specimens was beyond the range of the instrument of 10^{16} ohms resulting in incomplete data.

2. Metals

- a. The average rates of corrosion of the metals decrease with time. The average weight changes as calculated from the average rate graphs and tabulated in Table 59 indicate a leveling off for the steel and Al 52S bolted specimens after five days of exposure. The calculated weight changes of the Al 24S and Al 52S show smaller value for the fifteenth day than for the fifth and tenth days.

- b. The order of decreasing corrosion rates as determined by the mean value of the average rates summarized in Table 60 is steel, Al 52S bolted, Al 52S and Al 24S.

B. Enclosed Specimens

1. Plastics

- a. The enclosed plastic specimens show the same variations in percent weight changes and surface resistance as the exposed plastic specimens but to a much smaller degree.
- b. The percent moisture absorbed by the enclosed plastic specimens increases logarithmically with time and tends to level off toward the end of the test period. The enclosed phenolite specimens show a greater percent weight change than the enclosed terminal boards. The maximum percent weight change of the enclosed plastic specimens is much greater than the change of the corresponding exposed plastic specimens.
- c. The surface resistance of the enclosed phenolite and terminal board specimens decreases with time, the greatest change occurs within the first five days and levels off after that time. The terminal board specimens show a greater drop in surface resistance than the phenolite specimens.

2. Metals

No quantitative data was taken on the enclosed metal specimens.

SECTION VII CONCLUSIONS AND DISCUSSION

The following conclusions were drawn from the results obtained:

- (1) Due to the leveling off of the percent weight change and the surface resistance of the plastic specimens, the test period may be shortened from fifteen to ten days without invalidating the test for plastic specimens.
- (2) The shortening of the test period to ten days is supported by the calculated weight change data on the steel and Al 52S bolted specimens.

Although the results on the Al 24S and Al 52S are erratic, they do, to a degree, substantiate the above conclusion. The Al 24S specimens show the same maximum value after the fifth and tenth days of exposure. The Al 52S specimens show a maximum value for the fifth day of exposure and decreased values for the tenth and fifteenth day. In the last case, the computed weight change for the tenth day is the mean of the values for the fifth and fifteenth day.

- (3) No comparison can be made between the plastic panels of phenolite and lucite and the terminal boards with regard to loss of resistance since the geometry of the specimens is different. The resistance path between terminals on the terminal boards was shorter than that on the phenolite and lucite specimens. Comparison of the surface resistance data of the phenolite and lucite specimens indicates the superiority of the latter.
- (4) Lucite specimens becoming opaque during the test, indicates the inadvisability of using lucite for its optical properties under conditions approximating those of the test.
- (5) The results on Harvel coated steel and zinc coated steel were inclusive since no significant change occurred. The results do show the stability of these coatings for protecting steel in a humid atmosphere.
- (6) The corrosion of the Al 24S and Al 52 specimens was very slight indicating the stability of these metals in humid atmospheres. Since the mean value of the average rates of corrosion of Al 24S and Al 52S are nearly equal either metal is satisfactory for use.

- (7) The corrosion of the Al 52 bolted specimens indicate the inadvisability of using brass in assemblies since the brass parts corroded the most during this test. Since tin plated washers were affected to a lesser degree than the cadmium plated washers, the commercial tin plating is considered a better protective coating for the steel than the commercial cadmium plating.
- (8) The enclosed specimens showed changes which were not as great as those of the corresponding exposed specimens indicating that the containers offered some protection to the specimens.
- (9) When the measured weight changes of the metal specimens were plotted against the days exposed, a random distribution of points was produced. The weight averages of the three specimens removed produced the same result. The average rate of change was plotted out of necessity and the calculated average weight change appeared to be consistent.

The randomness of weight change data is due to several factors as:

- (a) The initial corrosion of metal specimens is a random property due to the physical structure of the surface and varies from specimen to specimen. Corrosion proceeds from weak points on the surface.
- (b) The condensation of moisture on the surface in the form of droplets is a random property which cannot be controlled.

Better reproducibility of corrosion-time curves of similar metal specimens may be obtained by:

- (a) using replicate specimens greater than three for testing
- (b) not cleaning off the corrosion products and thereby making it possible to return the same specimens to the testing chamber.

SECTION VIII RECOMMENDATIONS

The following recommendations are made:

- A. Test Period
Reduce the length of the test period from fifteen to ten days as indicated by the leveling off of the results noted for plastic and metal specimens.
- B. Test Specimens
 1. Eliminate the Harvel coated steel specimens since no appreciable changes were observed.
 2. Eliminate the zinc coated steel specimens since no appreciable changes were observed.
- C. Breather Jars
Use a metal container instead of the glass breather jar in order to reach equilibrium with the surroundings more rapidly. A stainless steel beaker without a spout and an improvised stainless steel cover would be suitable.
- D. Test Procedures
 1. Eliminate the resistance measurements on lucite unless an improved vacuum tube electrometer can be constructed. A suggested tube to use would be a General Electric 6P54 or its equivalent which has an input resistance of 10^{10} ohms.
 2. Eliminate the test for pitting since no measurable pitting was observed.
 3. Do not remove corrosion products on metals since no appreciable pitting was observed.
 4. Determine the corrosion of metals by increase of weight observed making it possible to return the metal specimens to the testing chamber and thereby improving the reproducibility of the results.
 5. Use five metal specimens instead of three to check results during a test and thereby improving the reliability of the mean values calculated for the metals.

TABLE 1

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
W.DC TR 53-107 Pt. 2

PHASE I

TEST 1

SPECIMEN TERMINAL BOARD

DATA WEIGHT - TIME

| NO. | WEIGHTS IN GRAMS | | | | | | | |
|--------------|------------------|---------|---------|---------|---------|---------|---------|---------|
| 1" | 34.6990 | 34.7820 | 34.8370 | 34.8937 | 34.9280 | 34.9664 | 34.9890 | 35.0140 |
| 2" | 35.1714 | 35.2465 | 35.2910 | 35.3350 | 35.3750 | 35.4110 | 35.4303 | 35.4640 |
| 3" | 34.9837 | 35.1440 | 35.1694 | 35.2225 | 35.2497 | 35.2727 | 35.3090 | 35.3306 |
| 4" | 34.5935 | 34.6710 | 34.7145 | 34.7614 | 34.7964 | 34.8370 | 34.8511 | 34.8782 |
| 5" | 35.1052 | 35.1885 | 35.2490 | 35.2980 | 35.3393 | 35.3790 | 35.4106 | 35.4306 |
| 6 | 34.9277 | 35.1632 | 35.2865 | 35.4085 | 35.5124 | 35.6000 | 35.6773 | 35.7517 |
| 7 | 34.8344 | 35.0640 | 35.1856 | 35.3037 | 35.4020 | 35.4880 | 35.5626 | 35.6287 |
| 8 | 35.0136 | 35.2375 | 35.3590 | 35.4720 | 35.5686 | 35.6557 | 35.7278 | 35.7930 |
| 9 | 35.2850 | 35.5380 | 35.6740 | 35.7970 | 35.9044 | 36.0034 | 36.0732 | 36.1504 |
| 10 | 34.5101 | 34.7730 | 34.9190 | 35.0400 | 35.1400 | 35.2390 | 35.2946 | 35.3605 |
| 11* | 34.9223 | 34.9378 | 34.9402 | 34.9410 | 34.9438 | 34.9438 | 34.9460 | 34.9476 |
| 12* | 34.6737 | 34.6830 | 34.6902 | 34.6917 | 34.6945 | 34.6941 | 34.6962 | 34.6967 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1" | 35.0447 | 35.0621 | 35.0708 | 35.0933 | 35.1061 | 35.1269 | 35.1423 | 35.1384 |
| 2" | 35.4842 | 35.4961 | 35.5098 | 35.5272 | 35.5503 | 35.5673 | 35.5750 | 35.5947 |
| 3" | 35.3546 | 35.5772 | 35.3847 | 35.4023 | 35.4110 | 35.4487 | 35.4567 | 35.4650 |
| 4" | 34.9057 | 34.9288 | 34.9330 | 34.9582 | 34.9708 | 34.9940 | 35.0257 | 35.0346 |
| 5" | 35.4585 | 35.4744 | 35.4974 | 35.5244 | 35.5240 | 35.5456 | 35.5733 | 35.5824 |
| 6 | 35.8016 | 35.8408 | 35.8944 | 35.9588 | 36.0013 | 36.0292 | 36.0392 | 36.0818 |
| 7 | 35.6777 | 35.7224 | 35.7797 | 35.8368 | 35.8765 | 35.9032 | 35.9274 | 35.9638 |
| 8 | 35.8418 | 35.8959 | 35.9466 | 35.9917 | 36.0352 | 36.0568 | 36.0746 | 36.1032 |
| 9 | 36.2050 | 36.2598 | 36.3196 | 36.3706 | 36.4212 | 36.4443 | 36.4728 | 36.5082 |
| 10 | 35.3966 | 35.4316 | 35.4709 | 35.5076 | 35.5387 | 35.5467 | 35.5556 | 35.5826 |
| 11* | 34.9474 | 34.9482 | 34.9482 | 34.9486 | 34.9505 | 34.9486 | 34.9498 | 34.9492 |
| 12* | 34.6972 | 34.6980 | 34.6980 | 34.6983 | 34.7001 | 34.6983 | 34.6993 | 34.6993 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 2

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADO TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN TERMINAL BOARD

DATA WEIGHT - TIME

| NO. | WEIGHT IN GRAMS | | | | | | | |
|-----|-----------------|---------|---------|---------|---------|---------|---------|---------|
| 13" | 34.6700 | 34.7374 | 34.7815 | 34.8198 | 34.8560 | 34.8821 | 34.9354 | 34.9892 |
| 14" | 35.2838 | 35.3518 | 35.3929 | 35.4338 | 35.4928 | 35.5643 | 35.5666 | 35.5891 |
| 15" | 34.9935 | 35.0544 | 35.1098 | 35.1496 | 35.1816 | 35.2116 | 35.2356 | 35.2610 |
| 16" | 35.0728 | 35.1270 | 35.2138 | 35.2412 | 35.2954 | 35.3158 | 35.3470 | 35.3803 |
| 17" | 34.7311 | 34.7990 | 34.8447 | 34.9022 | 34.9330 | 34.9604 | 34.9878 | 35.0138 |
| 18" | 34.6226 | 34.8704 | 34.9286 | 35.1652 | 35.2855 | 35.3610 | 35.4278 | 35.5254 |
| 19 | 35.0732 | 35.2944 | 35.4377 | 35.5654 | 35.6608 | 35.7442 | 35.8050 | 35.9087 |
| 20 | 35.2434 | 35.4517 | 35.5925 | 35.7088 | 35.8051 | 35.8907 | 35.9557 | 36.0412 |
| 21 | 34.7828 | 34.9890 | 35.1305 | 35.2481 | 35.3444 | 35.4294 | 35.4910 | 35.5774 |
| 22 | 35.0433 | 35.2426 | 35.3816 | 35.6970 | 35.6156 | 35.6498 | 35.7576 | 35.8570 |
| 23* | 34.8588 | 34.8596 | 34.8611 | 34.8632 | 34.8632 | 34.8642 | 34.8646 | 34.8664 |
| 24* | 34.8030 | 34.8038 | 34.8052 | 34.8073 | 34.8073 | 34.8083 | 34.8086 | 34.8106 |

Days
Exposed

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| 13" | 35.0032 | 35.0047 | 35.0224 | 35.0620 | 35.0808 | 35.0974 | 35.1242 | 35.1446 |
| 14" | 35.6114 | 35.6144 | 35.6334 | 35.6435 | 35.6632 | 35.6754 | 35.6892 | 35.7012 |
| 15" | 35.3406 | 35.3321 | 35.3422 | 35.3552 | 35.3892 | 35.3936 | 35.4232 | 35.4275 |
| 16" | 35.3922 | 35.4054 | 35.4370 | 35.4408 | 35.4544 | 35.4655 | 35.4881 | 35.5016 |
| 17" | 35.0336 | 35.0576 | 35.0714 | 35.0872 | 35.1043 | 35.1262 | 35.1406 | 35.1500 |
| 18 | 35.5803 | 35.6253 | 35.6644 | 35.7000 | 35.7513 | 35.7902 | 35.8130 | 35.8486 |
| 19 | 35.9612 | 36.0014 | 36.0470 | 36.0821 | 36.1330 | 36.1746 | 36.2008 | 36.2337 |
| 20 | 36.0962 | 36.1467 | 36.1856 | 36.2298 | 36.2775 | 36.3168 | 36.3484 | 36.3834 |
| 21 | 35.6566 | 35.6878 | 35.7354 | 35.7816 | 35.8232 | 35.8682 | 35.8910 | 35.9134 |
| 22 | 35.8868 | 35.9400 | 35.9700 | 36.0214 | 36.0620 | 36.0820 | 36.1192 | 36.1686 |
| 23* | 34.8668 | 34.8678 | 34.8676 | 34.8694 | 34.8704 | 34.8710 | 34.8716 | 34.8724 |
| 24* | 34.8111 | 34.8118 | 34.8118 | 34.8136 | 34.8144 | 34.8136 | 34.8140 | 34.8150 |

Days
Exposed" Enclosed
* Control

WADO TR 53-107 Pt 2

24

TABLE 3

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN TERMINAL BOARD

DATA PER CENT WEIGHT INCREASE - TIME

| NO. | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1" | 0 | 0.239 | 0.398 | 0.561 | 0.660 | 0.771 | 0.836 | 0.908 |
| 2" | 0 | 0.214 | 0.340 | 0.465 | 0.579 | 0.681 | 0.736 | 0.832 |
| 3" | 0 | 0.458 | 0.531 | 0.683 | 0.760 | 0.826 | 0.930 | 0.992 |
| 4" | 0 | 0.224 | 0.350 | 0.485 | 0.587 | 0.689 | 0.745 | 0.823 |
| 5" | 0 | 0.237 | 0.410 | 0.549 | 0.667 | 0.780 | 0.870 | 0.927 |
| 6 | 0 | 0.674 | 1.027 | 1.377 | 1.674 | 1.925 | 2.146 | 2.359 |
| 7 | 0 | 0.659 | 1.008 | 1.347 | 1.629 | 1.876 | 2.091 | 2.280 |
| 8 | 0 | 0.640 | 0.987 | 1.309 | 1.595 | 1.834 | 2.040 | 2.226 |
| 9 | 0 | 0.717 | 1.103 | 1.451 | 1.755 | 2.036 | 2.234 | 2.453 |
| 10 | 0 | 0.762 | 1.185 | 1.536 | 1.825 | 2.112 | 2.273 | 2.464 |
| 11* | 0 | 0.044 | 0.051 | 0.054 | 0.062 | 0.062 | 0.068 | 0.072 |
| 12* | 0 | 0.027 | 0.048 | 0.052 | 0.060 | 0.059 | 0.065 | 0.066 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1" | 0.996 | 1.046 | 1.072 | 1.136 | 1.173 | 1.233 | 1.278 | 1.266 |
| 2" | 0.889 | 0.923 | 0.962 | 1.012 | 1.077 | 1.126 | 1.148 | 1.204 |
| 3" | 1.060 | 1.125 | 1.146 | 1.197 | 1.221 | 1.329 | 1.352 | 1.376 |
| 4" | 0.903 | 0.952 | 0.981 | 1.054 | 1.091 | 1.158 | 1.249 | 1.275 |
| 5" | 1.006 | 1.052 | 1.117 | 1.194 | 1.193 | 1.252 | 1.333 | 1.359 |
| 6 | 2.502 | 2.614 | 2.782 | 2.952 | 3.074 | 3.154 | 3.182 | 3.304 |
| 7 | 2.421 | 2.549 | 2.714 | 2.878 | 2.992 | 3.068 | 3.138 | 3.242 |
| 8 | 2.365 | 2.520 | 2.665 | 2.794 | 2.918 | 2.979 | 3.030 | 3.112 |
| 9 | 2.607 | 2.763 | 2.932 | 3.077 | 3.220 | 3.286 | 3.366 | 3.467 |
| 10 | 2.569 | 2.670 | 2.784 | 2.891 | 2.981 | 3.004 | 3.030 | 3.108 |
| 11* | 0.072 | 0.074 | 0.074 | 0.075 | 0.081 | 0.075 | 0.079 | 0.077 |
| 12* | 0.068 | 0.070 | 0.070 | 0.071 | 0.076 | 0.070 | 0.074 | 0.074 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 4

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN TERMINAL BOARD

DATA PER CENT WEIGHT INCREASE - TIME

| NO. | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 13" | 0 | 0.194 | 0.322 | 0.432 | 0.536 | 0.612 | 0.766 | 0.921 |
| 14" | 0 | 0.123 | 0.309 | 0.425 | 0.592 | 0.795 | 0.802 | 0.865 |
| 15" | 0 | 0.174 | 0.332 | 0.446 | 0.538 | 0.623 | 0.692 | 0.764 |
| 16" | 0 | 0.155 | 0.402 | 0.480 | 0.635 | 0.693 | 0.782 | 0.877 |
| 17" | 0 | 0.196 | 0.327 | 0.493 | 0.581 | 0.660 | 0.739 | 0.814 |
| 18 | 0 | 0.716 | 0.896 | 1.567 | 1.915 | 2.133 | 2.326 | 2.608 |
| 19 | 0 | 0.631 | 1.039 | 1.403 | 1.675 | 1.913 | 2.086 | 2.382 |
| 20 | 0 | 0.591 | 0.991 | 1.321 | 1.594 | 1.837 | 2.021 | 2.264 |
| 21 | 0 | 0.593 | 1.000 | 1.338 | 1.614 | 1.571 | 2.036 | 2.284 |
| 22 | 0 | 0.854 | 0.965 | 1.365 | 1.633 | 1.730 | 2.038 | 2.321 |
| 23* | 0 | 0.002 | 0.007 | 0.013 | 0.013 | 0.015 | 0.017 | 0.022 |
| 24* | 0 | 0.002 | 0.006 | 0.012 | 0.012 | 0.015 | 0.016 | 0.022 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13" | 0.961 | 0.965 | 1.016 | 1.131 | 1.136 | 1.233 | 1.310 | 1.369 |
| 14" | 0.928 | 0.937 | 0.991 | 1.019 | 1.075 | 1.110 | 1.149 | 1.183 |
| 15" | 0.992 | 0.968 | 0.996 | 1.044 | 1.131 | 1.143 | 1.228 | 1.240 |
| 16" | 0.911 | 0.948 | 1.038 | 1.089 | 1.088 | 1.120 | 1.184 | 1.223 |
| 17" | 0.871 | 0.940 | 0.980 | 1.025 | 1.075 | 1.138 | 1.179 | 1.206 |
| 18 | 2.766 | 2.896 | 3.009 | 3.112 | 3.260 | 3.372 | 3.438 | 3.541 |
| 19 | 2.532 | 2.646 | 2.776 | 2.877 | 3.022 | 3.140 | 3.215 | 3.309 |
| 20 | 2.420 | 2.563 | 2.673 | 2.799 | 2.934 | 3.046 | 3.135 | 3.235 |
| 21 | 2.512 | 2.602 | 2.739 | 2.872 | 2.991 | 3.121 | 3.186 | 3.250 |
| 22 | 2.406 | 2.559 | 2.644 | 2.791 | 2.906 | 2.963 | 3.070 | 3.068 |
| 23* | 0.023 | 0.026 | 0.025 | 0.030 | 0.033 | 0.035 | 0.038 | 0.039 |
| 24* | 0.023 | 0.025 | 0.025 | 0.030 | 0.033 | 0.030 | 0.032 | 0.034 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 5

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN TERMINAL BOARD

DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

| NO. | AVERAGE PER CENT WEIGHT INCREASE OF TEST 1 | | | | | | | |
|--------------|--|-------|-------|-------|-------|-------|-------|-------|
| 1-5" | 0 | 0.274 | 0.406 | 0.549 | 0.651 | 0.749 | 0.823 | 0.896 |
| 6-10 | 0 | 0.690 | 1.062 | 1.404 | 1.694 | 1.957 | 2.157 | 2.356 |
| 11-12* | 0 | 0.036 | 0.050 | 0.053 | 0.061 | 0.061 | 0.067 | 0.069 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1-5" | 0.926 | 1.020 | 1.056 | 1.119 | 1.151 | 1.220 | 1.272 | 1.296 |
| 6-10 | 2.493 | 2.623 | 2.775 | 2.918 | 3.037 | 3.098 | 3.149 | 3.247 |
| 11-12* | 0.070 | 0.072 | 0.072 | 0.073 | 0.079 | 0.073 | 0.077 | 0.076 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

| NO. | AVERAGE PER CENT WEIGHT INCREASE OF TEST 2 | | | | | | | |
|--------------|--|-------|-------|-------|-------|-------|-------|-------|
| 13-17" | 0 | 0.182 | 0.338 | 0.455 | 0.576 | 0.676 | 0.756 | 0.868 |
| 18-21 | 0 | 0.633 | 0.977 | 1.407 | 1.700 | 1.864 | 2.117 | 2.383 |
| 23-24* | 0 | 0.002 | 0.007 | 0.013 | 0.013 | 0.015 | 0.017 | 0.022 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 13-17" | 0.932 | 0.952 | 1.004 | 1.052 | 1.111 | 1.149 | 1.210 | 1.244 |
| 18-22 | 2.558 | 2.677 | 2.799 | 2.915 | 3.052 | 3.170 | 3.244 | 3.334 |
| 23-24* | 0.023 | 0.026 | 0.025 | 0.030 | 0.033 | 0.033 | 0.035 | 0.037 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 6

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TESTS 1 & 2
 SPECIMEN TERMINAL BOARD
 DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

AVERAGE PER CENT WEIGHT INCREASE OF TESTS 1 & 2

| | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|
| Enclosed | 0.2280 | 0.3720 | 0.5020 | 0.6135 | 0.7125 | 0.7895 | 0.8825 | 0.9290 |
| Exposed | 0.6620 | 1.0195 | 1.4055 | 1.6970 | 1.9105 | 2.1370 | 2.3695 | 2.5255 |

| | | | | | | | | |
|------|---|---|---|---|---|---|---|---|
| Days | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------|---|---|---|---|---|---|---|---|

| | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|
| Enclosed | 0.9860 | 1.0300 | 1.0855 | 1.1310 | 1.1845 | 1.2410 | 1.2700 |
| Exposed | 2.6500 | 2.7870 | 2.9165 | 3.0445 | 3.1340 | 3.1965 | 3.2905 |

| | | | | | | | |
|---------|---|----|----|----|----|----|----|
| Days | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Exposed | | | | | | | |

TABLE 7

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN PHENOLITE

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|-------|-----------|
| 1" | 4.00 | 2.00 | 0.112 |
| 2" | 4.00 | 2.00 | 0.120 |
| 3" | 4.00 | 2.00 | 0.125 |
| 4" | 4.00 | 2.00 | 0.126 |
| 5" | 4.00 | 2.00 | 0.112 |
| 6 | 4.00 | 2.00 | 0.121 |
| 7 | 4.00 | 2.00 | 0.124 |
| 8 | 4.00 | 2.00 | 0.124 |
| 9 | 4.00 | 2.00 | 0.125 |
| 10 | 4.00 | 2.00 | 0.108 |
| 11* | 4.00 | 2.00 | 0.124 |
| 12* | 4.00 | 2.00 | 0.127 |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN PHENOLITE

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|-------|-----------|
| 13" | 4.00 | 2.00 | 0.118 |
| 14" | 4.00 | 2.00 | 0.120 |
| 15" | 4.00 | 2.00 | 0.123 |
| 16" | 4.00 | 2.00 | 0.122 |
| 17" | 4.00 | 2.00 | 0.131 |
| 18 | 4.00 | 2.00 | 0.130 |
| 19 | 4.00 | 2.00 | 0.129 |
| 20 | 4.00 | 2.00 | 0.121 |
| 21 | 4.00 | 2.00 | 0.122 |
| 22 | 4.00 | 2.00 | 0.122 |
| 23* | 4.00 | 2.00 | 0.129 |
| 24* | 4.00 | 2.00 | 0.126 |

" Enclosed

* Control

TABLE 8

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN PHENOLITE

DATA WEIGHT - TIME

| NO. | WEIGHT IN GRAMS | | | | | | | |
|-----|-----------------|---------|---------|---------|---------|---------|---------|---------|
| 1" | 19.8829 | 19.9830 | 20.0397 | 20.0905 | 20.1262 | 20.1690 | 20.1987 | 20.2187 |
| 2" | 21.3700 | 21.4914 | 21.5440 | 21.5920 | 21.6391 | 21.6766 | 21.6977 | 21.7302 |
| 3" | 21.8472 | 22.0023 | 22.0326 | 22.0761 | 22.1038 | 22.1250 | 22.1542 | 22.1764 |
| 4" | 22.3075 | 22.4400 | 22.4940 | 22.5460 | 22.5375 | 22.6283 | 22.6537 | 22.6842 |
| 5" | 19.8554 | 19.9631 | 20.0420 | 20.0660 | 20.1070 | 20.1432 | 20.1712 | 20.2012 |
| 6 | 21.4364 | 21.6440 | 21.7646 | 21.8686 | 21.9476 | 22.0122 | | 22.1332 |
| 7 | 22.0374 | 22.2410 | 22.3622 | 22.4682 | 22.5526 | 22.6136 | | 22.7345 |
| 8 | 22.0146 | 22.2390 | 22.3640 | 22.4695 | 22.5544 | 22.6096 | | 22.7185 |
| 9 | 22.2680 | 22.4905 | 22.6240 | 22.7397 | 22.8340 | 22.8958 | | 23.0215 |
| 10 | 19.0102 | 19.1760 | 19.2700 | 19.3535 | 19.4234 | 19.4760 | | 19.5623 |
| 11* | 21.8213 | 21.8624 | 21.8680 | 21.8703 | 21.8750 | 21.8766 | | 21.8818 |
| 12* | 22.5540 | 22.5930 | 22.6005 | 22.6029 | 22.6064 | 22.6082 | | 22.6135 |

| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1" | 20.2360 | 20.2454 | 20.2568 | 20.2747 | 20.2841 | 20.2957 | 20.3012 | 20.3134 |
| 2" | 21.7483 | 21.7734 | 21.7897 | 21.8002 | 21.8161 | 21.8371 | 21.8401 | 21.8536 |
| 3" | 22.1933 | 22.2076 | 22.2224 | 22.2367 | 22.2546 | 22.2678 | 22.2806 | 22.2898 |
| 4" | 22.7008 | 22.7198 | 22.7261 | 22.7417 | 22.7697 | 22.7737 | 22.7776 | 22.7673 |
| 5" | 20.2138 | 20.2290 | 20.2404 | 20.2655 | 20.2773 | 20.2052 | 20.3054 | 20.3104 |
| 6 | | | | 22.2802 | | 22.3186 | | 22.3597 |
| 7 | | | | 22.8081 | | 22.9292 | | 22.9710 |
| 8 | | | | 22.8518 | | 22.8804 | | 22.9126 |
| 9 | | | | 23.1905 | | 23.2280 | | 23.2696 |
| 10 | | | | 19.6875 | | 19.7174 | | 19.7416 |
| 11* | | | | 21.8844 | | 21.8868 | | 21.8868 |
| 12* | | | | 22.6156 | | 22.6175 | | 22.6200 |

| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--------------|---|---|----|----|----|----|----|----|
|--------------|---|---|----|----|----|----|----|----|

" Enclosed

* Control

TABLE 9

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 2
 SPECIMEN PHENOLITE
 DATA WEIGHT - TIME

| NO. | WEIGHT IN GRAMS | | | | | | | |
|--------------|-----------------|---------|---------|---------|---------|---------|---------|---------|
| 13" | 20.9873 | 21.0783 | 21.1780 | 21.2167 | 21.2772 | 21.2961 | 21.3514 | 21.3974 |
| 14" | 21.2156 | 21.3053 | 21.3553 | 21.3977 | 21.4230 | 21.5024 | 21.5094 | 21.5292 |
| 15" | 21.7826 | 21.8780 | 21.9268 | 21.9710 | 22.0370 | 22.0582 | 22.0863 | 22.1262 |
| 16" | 21.5660 | 21.6598 | 21.7221 | 21.7970 | 21.8288 | 21.8610 | 21.8861 | 21.9154 |
| 17" | 22.2904 | 22.3712 | 22.4194 | 22.4554 | 22.4902 | 22.5161 | 22.5442 | 22.5696 |
| 18 | 21.8401 | 22.0462 | 22.1668 | 22.2960 | 22.3323 | 22.4433 | | 22.5661 |
| 19 | 22.9364 | 23.1630 | 23.3102 | 23.4412 | 23.5408 | 23.6218 | | 23.7554 |
| 20 | 21.3848 | 21.5730 | 21.7034 | 21.8054 | 21.8900 | 21.9550 | | 22.0750 |
| 21 | 21.6600 | 21.8776 | 22.0250 | 22.1428 | 22.2433 | 22.3272 | | 22.4466 |
| 22 | 21.6921 | 21.9068 | 22.0480 | 22.1714 | 22.2688 | 22.3662 | | 22.4776 |
| 23* | 22.5894 | 22.5943 | 22.6006 | 22.6063 | 22.6098 | 22.6120 | | 22.6183 |
| 24* | 21.9135 | 21.9192 | 21.9251 | 21.9312 | 21.9332 | 21.9342 | | 21.9426 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13" | 21.3940 | 21.4116 | 21.4140 | 21.4247 | 21.4331 | 21.4382 | 21.4517 | 21.4524 |
| 14" | 21.5924 | 21.5611 | 21.5944 | 21.6266 | 21.6394 | 21.6378 | 21.6620 | 21.6570 |
| 15" | 22.1412 | 22.1476 | 22.1579 | 22.1686 | 22.1841 | 22.1932 | 22.2092 | 22.2193 |
| 16" | 21.9374 | 21.9548 | 21.9678 | 21.9767 | 21.9914 | 22.0153 | 22.0216 | 22.0513 |
| 17" | 22.5952 | 22.6054 | 22.6318 | 22.6370 | 22.6653 | 22.6820 | 22.7060 | 22.7068 |
| 18 | | | | 22.7007 | | 22.7466 | | 22.7767 |
| 19 | | | | 23.9442 | | 23.9840 | | 24.0020 |
| 20 | | | | 22.2100 | | 22.2538 | | 22.2392 |
| 21 | | | | 22.5620 | | 22.5920 | | 22.6138 |
| 22 | | | | 22.6186 | | 22.6388 | | 22.6656 |
| 23* | | | | 22.6281 | | 22.6326 | | 22.6373 |
| 24* | | | | 21.9516 | | 21.9551 | | 21.9592 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed
 * Control

TABLE 10

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN PHENOLITE

DATA PER CENT WEIGHT INCREASE - TIME

| NO. | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1" | 0 | 0.503 | 0.789 | 1.044 | 1.224 | 1.439 | 1.588 | 1.689 |
| 2" | 0 | 0.568 | 0.814 | 1.039 | 1.259 | 1.435 | 1.533 | 1.686 |
| 3" | 0 | 0.710 | 0.849 | 1.048 | 1.175 | 1.272 | 1.405 | 1.507 |
| 4" | 0 | 0.594 | 0.836 | 1.069 | 1.255 | 1.438 | 1.552 | 1.689 |
| 5" | 0 | 0.542 | 0.839 | 1.061 | 1.267 | 1.449 | 1.594 | 1.742 |
| 6 | 0 | 0.968 | 1.531 | 2.016 | 2.305 | 2.686 | | 3.251 |
| 7 | 0 | 0.924 | 1.474 | 1.955 | 2.338 | 2.615 | | 3.163 |
| 8 | 0 | 1.019 | 1.587 | 2.066 | 2.452 | 2.703 | | 3.197 |
| 9 | 0 | 0.999 | 1.599 | 2.113 | 2.542 | 2.819 | | 3.384 |
| 10 | 0 | 0.872 | 1.367 | 1.806 | 2.174 | 2.450 | | 2.904 |
| 11* | 0 | 0.188 | 0.214 | 0.225 | 0.246 | 0.253 | | 0.277 |
| 12* | 0 | 0.173 | 0.206 | 0.217 | 0.232 | 0.240 | | 0.264 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1" | 1.776 | 1.823 | 1.881 | 1.971 | 2.018 | 2.076 | 2.104 | 2.164 |
| 2" | 1.770 | 1.888 | 1.964 | 2.013 | 2.080 | 2.186 | 2.200 | 2.263 |
| 3" | 1.584 | 1.650 | 1.717 | 1.783 | 1.865 | 1.925 | 1.984 | 2.026 |
| 4" | 1.763 | 1.848 | 1.876 | 1.946 | 2.073 | 2.090 | 2.107 | 2.061 |
| 5" | 1.805 | 1.832 | 1.939 | 2.065 | 2.125 | 2.165 | 2.266 | 2.292 |
| 6 | | | | 3.936 | | 4.115 | | 4.307 |
| 7 | | | | 3.860 | | 4.046 | | 4.236 |
| 8 | | | | 3.803 | | 3.933 | | 4.079 |
| 9 | | | | 4.143 | | 4.315 | | 4.498 |
| 10 | | | | 3.563 | | 3.720 | | 3.863 |
| 11* | | | | 0.289 | | 0.300 | | 0.300 |
| 12* | | | | 0.273 | | 0.281 | | 0.292 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 11

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN PHENOLITE

DATA PER CENT WEIGHT INCREASE - TIME

| NO. | | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| 13" | 0 | 0.434 | 0.909 | 1.093 | 1.381 | 1.471 | 1.735 | 1.954 | |
| 14" | 0 | 0.423 | 0.658 | 0.858 | 1.001 | 1.352 | 1.385 | 1.478 | |
| 15" | 0 | 0.438 | 0.662 | 0.865 | 1.168 | 1.265 | 1.394 | 1.577 | |
| 16" | 0 | 0.435 | 0.724 | 1.071 | 1.218 | 1.368 | 1.484 | 1.620 | |
| 17" | 0 | 0.362 | 0.579 | 0.740 | 0.896 | 1.012 | 1.139 | 1.252 | |
| 18 | 0 | 0.944 | 1.496 | 2.087 | 2.485 | 2.764 | | 3.324 | |
| 19 | 0 | 0.988 | 1.630 | 2.201 | 2.634 | 2.988 | | 3.571 | |
| 20 | 0 | 0.880 | 1.490 | 1.967 | 2.362 | 2.666 | | 3.228 | |
| 21 | 0 | 1.005 | 1.685 | 2.229 | 2.695 | 3.080 | | 3.632 | |
| 22 | 0 | 0.989 | 1.641 | 2.210 | 2.658 | 3.108 | | 3.621 | |
| 23* | 0 | 0.024 | 0.050 | 0.077 | 0.090 | 0.100 | | 0.128 | |
| 24* | 0 | 0.026 | 0.051 | 0.081 | 0.090 | 0.094 | | 0.133 | |
| Days Exposed | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13" | 1.938 | 2.022 | 2.033 | 2.084 | 2.124 | 2.148 | 2.213 | 2.216 | |
| 14" | 1.776 | 1.723 | 1.785 | 1.937 | 1.998 | 1.990 | 2.104 | 2.080 | |
| 15" | 1.646 | 1.676 | 1.723 | 1.772 | 1.843 | 1.885 | 1.958 | 2.005 | |
| 16" | 1.722 | 1.803 | 1.863 | 1.904 | 1.973 | 2.086 | 2.112 | 2.251 | |
| 17" | 1.367 | 1.413 | 1.532 | 1.555 | 1.684 | 1.757 | 1.864 | 1.868 | |
| 18 | | | | 3.910 | | 4.151 | | 4.288 | |
| 19 | | | | 4.394 | | 4.567 | | 4.646 | |
| 20 | | | | 3.859 | | 4.064 | | 4.229 | |
| 21 | | | | 4.164 | | 4.303 | | 4.404 | |
| 22 | | | | 4.271 | | 4.364 | | 4.488 | |
| 23* | | | | 0.171 | | 0.191 | | 0.212 | |
| 24* | | | | 0.174 | | 0.190 | | 0.208 | |
| Days Exposed | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 12

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 1 & 2
 SPECIMEN PHENOLITE
 DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

| NO. | AVERAGE PER CENT WEIGHT INCREASE OF TEST 1 | | | | | | | |
|--------------|--|-------|-------|-------|-------|-------|-------|-------|
| 1 - 5" | 0 | 0.583 | 0.825 | 1.052 | 1.236 | 1.407 | 1.534 | 1.663 |
| 6-10 | 0 | 0.956 | 1.512 | 1.992 | 2.378 | 2.655 | | 3.180 |
| 11-12* | 0 | 0.181 | 0.210 | 0.221 | 0.239 | 0.247 | | 0.271 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 - 5" | 1.740 | 1.812 | 1.875 | 1.956 | 2.034 | 2.088 | 2.132 | 2.161 |
| 6-10 | | | | 3.861 | | 4.026 | | 4.197 |
| 11-12* | | | | 0.281 | | 0.291 | | 0.296 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

| NO. | AVERAGE PER CENT WEIGHT INCREASE OF TEST 2 | | | | | | | |
|--------------|--|-------|-------|-------|-------|-------|-------|-------|
| 13-17" | 0 | 0.418 | 0.706 | 0.925 | 1.133 | 1.294 | 1.427 | 1.576 |
| 18-22 | 0 | 0.961 | 1.538 | 2.139 | 2.567 | 2.921 | | 3.475 |
| 23-24* | 0 | 0.025 | 0.052 | 0.079 | 0.090 | 0.097 | | 0.131 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13-17" | 1.690 | 1.727 | 1.787 | 1.850 | 1.924 | 1.973 | 2.050 | 2.084 |
| 18-22 | | | | 4.126 | | 4.290 | | 4.511 |
| 23-24* | | | | 0.173 | | 0.191 | | 0.210 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Enclosed
 * Control

TABLE 13

CORRELATION OF TEMPERATURE-HUMIDITY TEST

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN PHENOLITE

DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

AVERAGE PER CENT WEIGHT INCREASE OF TESTS 1 & 2

| | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|
| Enclosed | 0.5005 | 0.7655 | 0.9885 | 1.1840 | 1.3505 | 1.4805 | 1.6195 | 1.7150 |
| Exposed | 0.9585 | 1.5500 | 2.0655 | 2.4725 | 2.7880 | | 3.3275 | |

| | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|
| Days | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Exposed | | | | | | | | |

| | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|
| Enclosed | 1.7725 | 1.8310 | 1.9030 | 1.9790 | 2.0305 | 2.0910 | 2.1225 |
| Exposed | | | 3.9935 | | 4.1580 | | 4.3540 |

| | | | | | | | |
|---------|---|----|----|----|----|----|----|
| Days | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Exposed | | | | | | | |

TABLE 14

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 It 2

PHASE I

TEST 1

SPECIMEN LUCITE

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|--------|-----------|
| 1 | 4.0000 | 2.0000 | 0.119 |
| 2 | 4.0000 | 2.0078 | 0.123 |
| 3* | 3.9864 | 2.0078 | 0.130 |
| 4* | 3.9922 | 2.0000 | 0.134 |
| 5 | 4.0078 | 2.0000 | 0.119 |
| 6 | 4.0000 | 2.0078 | 0.125 |
| 7 | 4.0000 | 2.0000 | 0.130 |

WADC TR 53-107 It 2

PHASE I

TEST 2

SPECIMEN LUCITE

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|--------|-----------|
| 8 | 4.0156 | 2.0078 | 0.127 |
| 9 | 4.0000 | 2.0000 | 0.129 |
| 10 | 4.0078 | 1.9922 | 0.128 |
| 11 | 4.0078 | 2.0000 | 0.128 |
| 12 | 4.0000 | 2.0000 | 0.124 |
| 13* | 4.0234 | 2.0078 | 0.137 |
| 14* | 4.0078 | 2.0078 | 0.130 |

* Control

WADC TR 53-107 It 2

TABLE 15

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 It 2

PHASE I

TEST 1

SPECIMEN LUCITE

DATA WEIGHT - TIME

| NO. | WEIGHT IN GRAMS | | | | |
|--------------|-----------------|---------|---------|---------|---------|
| 1 | 18.3937 | 18.5640 | 18.6086 | 18.6174 | 18.6273 |
| 2 | 18.8591 | 19.0225 | 19.0710 | 19.0854 | 19.0954 |
| 3* | 21.2376 | 21.2805 | 21.2847 | 21.2875 | 21.2890 |
| 4* | 20.3109 | 20.3510 | 20.3576 | 20.3601 | 20.3645 |
| 5 | 18.4022 | 18.5710 | 18.6146 | 18.6250 | 18.6340 |
| 6 | 19.5080 | 19.6785 | 19.7270 | 19.7406 | 19.7516 |
| 7 | 19.7632 | 19.9370 | 19.9857 | 20.0014 | 20.0136 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 |
| 1 | 18.6250 | 18.6358 | 18.6358 | 18.6327 | 18.6327 |
| 2 | 19.0924 | 19.1030 | 19.1030 | 19.1010 | 19.1010 |
| 3* | 21.2890 | 21.2762 | 21.2774 | 21.2968 | 21.2847 |
| 4* | 20.3643 | 20.3668 | 20.3718 | 20.3715 | 20.3706 |
| 5 | 18.6326 | 18.6411 | 18.6383 | 18.6382 | 18.6382 |
| 6 | 19.7510 | 19.7602 | 19.7586 | 19.7586 | 19.7607 |
| 7 | 20.0150 | 20.0223 | 20.0201 | 20.0225 | 20.0207 |
| Days Exposed | 5 | 7 | 11 | 13 | 15 |

* Control

TABLE 16

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 It 2
 PHASE I
 TEST 2
 SPECIMEN LUCITE
 DATA WEIGHT - TIME

| NO. | WEIGHT IN GRAMS | | | | |
|--------------|-----------------|---------|---------|---------|---------|
| 8 | 19.7340 | 19.8847 | 19.9281 | 19.9564 | 19.9659 |
| 9 | 19.9170 | 20.0660 | 20.1128 | 20.1394 | 20.1500 |
| 10 | 19.7969 | 19.9465 | 19.9922 | 20.0104 | 20.0303 |
| 11 | 19.0260 | 19.1721 | 19.2160 | 19.2386 | 19.2472 |
| 12 | 19.0930 | 19.2398 | 19.2827 | 19.3070 | 19.3196 |
| 13* | 21.0327 | 21.0355 | 21.0387 | 21.0434 | 21.0458 |
| 14* | 20.0570 | 20.0356 | 20.0570 | 20.0620 | 20.0636 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 |
| 8 | 19.9704 | 19.9744 | 19.9740 | 19.9736 | 19.9746 |
| 9 | 20.1556 | 20.1606 | 20.1576 | 20.1600 | 20.1600 |
| 10 | 20.0344 | 20.0404 | 20.0415 | 20.0386 | 20.0372 |
| 11 | 19.2528 | 19.2624 | 19.2544 | 19.2566 | 19.2530 |
| 12 | 19.3206 | 19.3238 | 19.3246 | 19.3231 | 19.3253 |
| 13* | 21.0458 | 21.0458 | 21.0561 | 21.0592 | 21.0614 |
| 14* | 20.0644 | 20.0680 | 20.0743 | 20.0774 | 20.0744 |
| Days Exposed | 5 | 7 | 11 | 13 | 15 |

* Control

TABLE 17

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 It 2

PHASE I

TESTS 1 & 2

SPECIMEN LUCITE

DATA PER CENT WEIGHT INCREASE - TIME

| NO. | TEST 1 | | | | | | | | | |
|--------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 1 | 0.526 | 1.168 | 1.216 | 1.270 | 1.257 | 1.316 | 1.316 | 1.299 | 1.299 | |
| 2 | 0.866 | 1.140 | 1.200 | 1.253 | 1.237 | 1.293 | 1.293 | 1.283 | 1.283 | |
| 3* | 0.202 | 0.222 | 0.235 | 0.242 | 0.242 | 0.276 | 0.282 | 0.279 | 0.222 | |
| 4* | 0.212 | 0.230 | 0.244 | 0.264 | 0.263 | 0.275 | 0.300 | 0.298 | 0.274 | |
| 5 | 0.917 | 1.154 | 1.211 | 1.260 | 1.252 | 1.298 | 1.288 | 1.282 | 1.282 | |
| 6 | 0.874 | 1.123 | 1.192 | 1.249 | 1.246 | 1.293 | 1.285 | 1.285 | 1.295 | |
| 7 | 0.879 | 1.126 | 1.205 | 1.267 | 1.274 | 1.311 | 1.300 | 1.312 | 1.303 | |
| Days Exposed | 1 | 2 | 3 | 4 | 5 | 7 | 11 | 13 | 15 | |

| NO. | TEST 2 | | | | | | | | | |
|--------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 8 | 0.764 | 0.984 | 1.127 | 1.175 | 1.196 | 1.216 | 1.216 | 1.214 | 1.219 | |
| 9 | 0.752 | 0.983 | 1.117 | 1.174 | 1.198 | 1.223 | 1.218 | 1.220 | 1.220 | |
| 10 | 0.756 | 0.987 | 1.119 | 1.179 | 1.200 | 1.223 | 1.236 | 1.221 | 1.214 | |
| 11 | 0.772 | 0.999 | 1.117 | 1.163 | 1.192 | 1.243 | 1.200 | 1.213 | 1.193 | |
| 12 | 0.769 | 0.994 | 1.121 | 1.187 | 1.192 | 1.209 | 1.213 | 1.205 | 1.217 | |
| 13* | 0.013 | 0.029 | 0.051 | 0.062 | 0.062 | 0.081 | 0.111 | 0.126 | 0.136 | |
| 14* | 0.107 | 0.000 | 0.025 | 0.033 | 0.037 | 0.055 | 0.086 | 0.102 | 0.112 | |
| Days Exposed | 1 | 2 | 3 | 4 | 5 | 7 | 11 | 13 | 15 | |

* Control

TABLE 18

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN LUCITE

DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

| NO. | AVERAGE PER CENT WEIGHT INCREASE OF TEST 1 | | | | | | | | | |
|---------------|--|-------|-------|-------|-------|-------|-------|-------|------|--|
| 1, 2, 5, 6, 7 | 0.892 | 1.142 | 1.205 | 1.260 | 1.253 | 1.302 | 1.296 | 1.292 | 2.26 | |
| 3 - 4* | 0.207 | 0.226 | 0.240 | 0.253 | 0.253 | 0.276 | 0.271 | 0.289 | 0.25 | |
| Days Exposed | 1 | 2 | 3 | 4 | 5 | 7 | 11 | 13 | 15 | |

| NO. | AVERAGE PER CENT WEIGHT INCREASE OF TEST 2 | | | | | | | | | |
|----------|--|-------|-------|-------|-------|-------|-------|-------|------|--|
| 8 - 12 | 0.763 | 0.989 | 1.120 | 1.176 | 1.126 | 1.223 | 1.217 | 1.215 | 1.21 | |
| 13 - 14* | -0.094 | 0.015 | 0.038 | 0.048 | 0.050 | 0.068 | 0.069 | 0.114 | 0.12 | |
| Days | 1 | 2 | 3 | 4 | 5 | 7 | 11 | 13 | 15 | |

* Control

TABLE 19

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TESTS 1 & 2
 SPECIMEN LUCITE
 DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

AVERAGE PER CENT WEIGHT INCREASE OF TESTS 1 & 2

| | | | | | |
|---------|--------|--------|--------|--------|--------|
| Exposed | 0.6275 | 1.0655 | 1.1675 | 1.2180 | 1.2245 |
|---------|--------|--------|--------|--------|--------|

| | | | | | |
|--------------|---|---|---|---|---|
| Days Exposed | 1 | 2 | 3 | 4 | 5 |
|--------------|---|---|---|---|---|

| | | | | |
|---------|--------|--------|--------|--------|
| Exposed | 1.2625 | 1.2565 | 1.2535 | 1.2525 |
|---------|--------|--------|--------|--------|

| | | | | |
|--------------|---|----|----|----|
| Days Exposed | 7 | 11 | 13 | 15 |
|--------------|---|----|----|----|

TABLE 20

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 It 2

PHASE I

TEST 1

SPECIMEN TERMINAL BOARDS

DATA RESISTANCE MEASUREMENTS TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 1" | 5.5 | 250 | 10 ⁹ | 2.5 | 100 | 10 ⁸ | 3.4 | 100 | 10 ⁸ | 3.8 | 100 | 10 ⁷ |
| 2" | 6.4 | 250 | " | 2.8 | 100 | " | 3.2 | 100 | " | 2.5 | 100 | " |
| 3" | 7.0 | 250 | " | 2.6 | 25 | " | 3.6 | 100 | " | 3.3 | 100 | " |
| 4" | 6.3 | 250 | " | 3.0 | 100 | " | 2.7 | 100 | " | 1.6 | 100 | " |
| 5" | 5.4 | 250 | " | 2.4 | 100 | " | 3.2 | 100 | " | 1.0 | 10 | " |
| 6 | 8.0 | 250 | " | 3.2 | 10 | " | 2.6 | 10 | " | 7.0 | 25 | " |
| 7 | 6.8 | 250 | " | 6.4 | 25 | " | 6.5 | 25 | " | 9.0 | 100 | " |
| 8 | 4.3 | 100 | " | 3.0 | 10 | " | 2.6 | 10 | " | 7.0 | 25 | " |
| 9 | 5.6 | 250 | " | 3.1 | 10 | " | 3.7 | 10 | " | 3.2 | 10 | " |
| 10 | 4.8 | 100 | " | 4.0 | 10 | " | 3.4 | 10 | " | 3.6 | 10 | " |
| 11* | 3.0 | 100 | " | 1.6 | 100 | " | 5.6 | 100 | 10 ⁹ | 1.8 | 250 | 10 ⁸ |
| 12* | 6.0 | 250 | " | 5.3 | 100 | " | 5.4 | 100 | " | 2.4 | 250 | " |

Days
Exposed

0

1

2

3

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 1" | 0.8 | 250 | 10 ⁹ | 2.4 | 25 | 10 ⁸ | 3.2 | 100 | 10 ⁷ | 1.0 | 100 | 10 ⁷ |
| 2" | 1.0 | " | " | 6.4 | 100 | " | 2.2 | 100 | " | 0.8 | 100 | " |
| 3" | 1.2 | " | " | 2.2 | 25 | " | 4.0 | 100 | " | 1.3 | 100 | " |
| 4" | 1.0 | " | " | 1.8 | 25 | " | 1.8 | 100 | " | 0.6 | 100 | " |
| 5" | 1.4 | " | " | 7.0 | 100 | " | 2.0 | 100 | " | 0.6 | 100 | " |
| 6 | 1.2 | " | " | 5.6 | 10 | 10 ⁷ | 7.4 | 10 | " | 4.0 | 10 | 10 ⁶ |
| 7 | 1.5 | " | " | 5.8 | 100 | 10 ⁶ | 3.5 | 25 | 10 ⁶ | 3.2 | 10 | " |
| 8 | 0.9 | " | " | 6.7 | 100 | " | 2.1 | 25 | " | 1.6 | 10 | " |
| 9 | 0.9 | " | " | 2.5 | 25 | " | 3.7 | 25 | " | 2.6 | 10 | " |
| 10 | 1.0 | " | " | 4.4 | 25 | " | 3.4 | 25 | " | 2.2 | 10 | " |
| 11* | 1.4 | " | " | 4.8 | 100 | 10 ⁹ | 2.0 | 25 | 10 ⁹ | 1.2 | 100 | 10 ⁸ |
| 12* | 1.4 | " | " | 4.4 | 100 | " | 1.5 | 25 | " | 2.0 | 250 | " |

Days
Exposed

4

5

6

7

E - Volts
 E₀ - Volts
 R_s - Ohms
 " - Enclosed
 * - Control

TABLE 20

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN TERMINAL BOARDS

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _S | E | E ₀ | R _S | E | E ₀ | R _S | E | E ₀ | R _S |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 1" | 1.8 | 100 | 10 ⁷ | 2.0 | 100 | 10 ⁷ | 2.6 | 100 | 10 ⁷ | 2.3 | 25 | 10 ⁷ |
| 2" | 1.5 | 100 | " | 1.8 | 100 | " | 1.4 | 100 | " | 5.3 | 100 | " |
| 3" | 2.8 | 100 | " | 3.0 | 100 | " | 2.6 | 100 | " | 7.6 | 100 | " |
| 4" | 1.8 | 100 | " | 1.8 | 100 | " | 1.5 | 100 | " | 3.8 | 100 | " |
| 5" | 1.6 | 100 | " | 1.5 | 100 | " | 2.0 | 100 | " | 4.1 | 100 | " |
| 6 | 2.4 | 10 | 10 ⁶ | 1.1 | 10 | 10 ⁶ | 4.8 | 10 | 10 ⁶ | 6.2 | 10 | 10 ⁶ |
| 7 | 1.8 | 10 | " | 1.4 | 10 | " | 4.2 | 10 | " | 5.2 | 10 | " |
| 8 | 1.0 | 10 | " | 2.7 | 25 | " | 3.1 | 10 | " | 3.2 | 10 | " |
| 9 | 2.6 | 10 | " | 2.2 | 10 | " | 4.6 | 10 | " | 5.2 | 10 | " |
| 10 | 1.7 | 10 | " | 1.0 | 10 | " | 3.0 | 10 | " | 3.4 | 10 | " |
| 11* | 1.0 | 100 | 10 ⁸ | 1.3 | 100 | 10 ⁸ | 1.5 | 100 | 10 ⁸ | 7.6 | 100 | 10 ⁹ |
| 12* | 2.0 | 250 | " | 2.3 | 250 | " | 2.6 | 250 | " | 6.8 | 100 | " |

Days
Exposed

8

9

10

11

| NO. | E | E ₀ | R _S | E | E ₀ | R _S | E | E ₀ | R _S | E | E ₀ | R _S |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 1" | 7.6 | 100 | 10 ⁷ | 2.1 | 25 | 10 ⁷ | 2.3 | 25 | 10 ⁷ | 0.8 | 25 | 10 ⁷ |
| 2" | 5.9 | 100 | " | 5.0 | 100 | " | 5.5 | 100 | " | 4.6 | 100 | " |
| 3" | 7.0 | 100 | " | 7.6 | 100 | " | 6.5 | 100 | " | 6.6 | 100 | " |
| 4" | 3.9 | 100 | " | 3.3 | 100 | " | 3.4 | 100 | " | 3.8 | 100 | " |
| 5" | 3.6 | 100 | " | 2.6 | 100 | " | 2.4 | 100 | " | 2.8 | 100 | " |
| 6 | 6.6 | 10 | 10 ⁶ | 6.4 | 10 | 10 ⁶ | 6.6 | 10 | 10 ⁶ | 2.1 | 2.5 | 10 ⁶ |
| 7 | 5.8 | 10 | " | 4.6 | 10 | " | 6.0 | 10 | " | 5.9 | 10 | " |
| 8 | 4.0 | 10 | " | 3.0 | 10 | " | 3.3 | 10 | " | 3.5 | 10 | " |
| 9 | 6.2 | 10 | " | 5.4 | 10 | " | 6.2 | 10 | " | 7.0 | 10 | " |
| 10 | 4.6 | 10 | " | 3.6 | 10 | " | 3.2 | 10 | " | 5.6 | 10 | " |
| 11* | 4.0 | 25 | 10 ⁹ | 1.3 | 25 | 10 ⁹ | 5.0 | 100 | 10 ⁹ | 1.9 | 25 | 10 ⁹ |
| 12* | 2.4 | 25 | " | 4.3 | 100 | " | 3.5 | 100 | " | 4.4 | 100 | " |

Days
Exposed

12

13

14

15

E - Volts
E₀ - Volts
R_S - Ohms" Enclosed
* Control

TABLE 21

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN TERMINAL BOARDS

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 2.4 | 100 | 10 ⁹ | 6.6 | 10 | 10 ⁹ | 2.1 | 25 | 10 ⁸ | 3.2 | 10 | 10 ⁸ |
| 14" | 4.3 | 250 | " | 5.4 | 10 | " | 4.0 | 100 | " | 2.0 | 10 | " |
| 15" | 1.9 | 100 | " | 4.8 | 10 | " | 2.4 | 25 | " | 2.1 | 10 | " |
| 16" | 1.8 | 100 | " | 3.8 | 10 | " | 2.4 | 25 | " | 1.6 | 10 | " |
| 17" | 1.5 | 100 | " | 4.0 | 10 | " | 1.2 | 25 | " | 1.5 | 10 | " |
| 18 | 2.2 | 250 | " | 2.1 | 2.5 | " | 6.6 | 10 | " | 4.2 | 10 | 10 ⁷ |
| 19 | 2.0 | 100 | " | 2.3 | 2.5 | " | 7.0 | 10 | " | 4.0 | 10 | " |
| 20 | 2.0 | 100 | " | 2.2 | 2.5 | " | 6.4 | 10 | " | 3.3 | 10 | " |
| 21 | 2.0 | 250 | " | 1.8 | 2.5 | " | 4.8 | 10 | " | 1.9 | 10 | " |
| 22 | 1.7 | 100 | " | 2.1 | 2.5 | " | 5.8 | 10 | " | 2.1 | 2.5 | " |
| 23* | 1.9 | 100 | " | 4.8 | 100 | " | 2.0 | 250 | " | 2.0 | 250 | 10 ⁸ |
| 24* | 1.6 | 100 | " | 5.2 | 100 | " | 2.2 | 250 | " | 2.0 | 250 | " |

Days Exposed 0 1 2 3

| NO. | E | E | R | E | E | R | E | E | R | E | E | R |
|-----|-----|-----|-----------------|-----|-----|-----------------|-----|-----|-----------------|-----|-----|-----------------|
| 13" | 1.2 | 100 | 10 ⁷ | 1.6 | 100 | 10 ⁷ | 3.2 | 100 | 10 ⁷ | 3.0 | 100 | 10 ⁷ |
| 14" | 1.6 | 100 | " | 3.4 | 100 | " | 2.0 | 100 | " | 1.4 | 100 | " |
| 15" | 1.6 | 100 | " | 1.4 | 100 | " | 1.2 | 100 | " | 1.0 | 100 | " |
| 16" | 2.0 | 100 | " | 2.0 | 100 | " | 1.3 | 100 | " | 1.4 | 100 | " |
| 17" | 1.1 | 100 | " | 1.4 | 100 | " | 0.9 | 100 | " | 0.8 | 100 | " |
| 18 | 2.4 | 10 | 10 ⁶ | 3.7 | 10 | 10 ⁶ | 4.4 | 10 | 10 ⁶ | 3.2 | 10 | 10 ⁶ |
| 19 | 1.3 | 10 | " | 2.3 | 10 | " | 2.4 | 10 | " | 2.0 | 10 | " |
| 20 | 2.4 | 25 | " | 4.6 | 25 | " | 4.6 | 25 | " | 2.5 | 25 | " |
| 21 | 1.4 | 25 | " | 3.2 | 25 | " | 3.2 | 25 | " | 1.4 | 25 | " |
| 22 | 1.1 | 25 | " | 1.4 | 25 | " | 1.4 | 25 | " | 3.4 | 100 | " |
| 23* | 1.6 | 250 | 10 ⁸ | 1.4 | 250 | 10 ⁸ | 1.0 | 250 | 10 ⁸ | 1.0 | 250 | 10 ⁸ |
| 24* | 1.4 | 250 | " | 1.4 | 250 | " | 1.0 | 250 | " | 1.0 | 250 | " |

Days Exposed 4 5 6 7

E - Volts

E₀ - VoltsR_s - Ohms

" Enclosed

* Control

TABLE 21

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN TERMINAL BOARDS

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 4.4 | 100 | 10 ⁷ | 1.6 | 100 | 10 ⁷ | 2.7 | 100 | 10 ⁷ | 4.8 | 100 | 10 ⁷ |
| 14" | 2.0 | 100 | " | 1.4 | 100 | " | 1.4 | 100 | " | 2.0 | 100 | " |
| 15" | 4.6 | 100 | " | 1.6 | 100 | " | 1.4 | 100 | " | 3.2 | 100 | " |
| 16" | 1.4 | 100 | " | 1.2 | 100 | " | 1.6 | 100 | " | 2.0 | 100 | " |
| 17" | 1.0 | 100 | " | 0.7 | 100 | " | 0.8 | 100 | " | 1.2 | 100 | " |
| 18 | 3.8 | 10 | 10 ⁶ | 5.0 | 10 | 10 ⁶ | 3.0 | 10 | 10 ⁶ | 3.4 | 10 | 10 ⁶ |
| 19 | 2.2 | 10 | " | 1.6 | 10 | " | 1.2 | 10 | " | 1.4 | 10 | " |
| 20 | 3.6 | 25 | " | 3.4 | 25 | " | 2.4 | 25 | " | 2.6 | 25 | " |
| 21 | 6.0 | 25 | " | 4.4 | 25 | " | 2.6 | 25 | " | 2.8 | 25 | " |
| 22 | 4.0 | 100 | " | 4.2 | 100 | " | 2.2 | 100 | " | 3.1 | 100 | " |
| 23* | 1.4 | 250 | 10 ⁸ | 1.3 | 250 | 10 ⁸ | 1.1 | 250 | 10 ⁸ | 1.7 | 250 | 10 ⁸ |
| 24* | 1.2 | 250 | " | 1.2 | 250 | " | 1.2 | 250 | " | 1.6 | 250 | " |

Days
Exposed

8

9

10

11

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 6.6 | 100 | 10 ⁷ | 6.8 | 100 | 10 ⁷ | 6.6 | 100 | 10 ⁷ | 3.6 | 25 | 10 ⁷ |
| 14" | 2.8 | 100 | " | 2.3 | 100 | " | 2.4 | 100 | " | 2.6 | 100 | " |
| 15" | 5.8 | 100 | " | 3.8 | 100 | " | 4.0 | 100 | " | 3.8 | 100 | " |
| 16" | 3.2 | 100 | " | 2.3 | 100 | " | 2.4 | 100 | " | 2.6 | 100 | " |
| 17" | 2.0 | 100 | " | 1.9 | 100 | " | 1.6 | 100 | " | 1.8 | 100 | " |
| 18 | 3.0 | 10 | 10 ⁶ | 4.2 | 10 | 10 ⁶ | 4.0 | 10 | 10 ⁶ | 5.4 | 10 | 10 ⁶ |
| 19 | 1.0 | 10 | " | 2.6 | 10 | " | 1.8 | 10 | " | 1.8 | 10 | " |
| 20 | 2.2 | 25 | " | 4.0 | 25 | " | 3.8 | 25 | " | 3.9 | 25 | " |
| 21 | 3.2 | 25 | " | 6.4 | 25 | " | 4.4 | 25 | " | 3.3 | 25 | " |
| 22 | 1.9 | 25 | " | 6.8 | 100 | " | 1.3 | 25 | " | 6.6 | 25 | " |
| 23* | 2.1 | 250 | 10 ⁸ | 1.8 | 250 | 10 ⁸ | 1.7 | 250 | 10 ⁸ | 1.5 | 250 | 10 ⁸ |
| 24* | 2.1 | 250 | " | 1.7 | 250 | " | 1.6 | 250 | " | 1.5 | 250 | " |

Days
Exposed

12

13

14

15

E - Volts

E₀ - VoltsR_s - Ohms

" Enclosed

* Control

TABLE 22

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN TERMINAL BOARDS

DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1" | 4.44×10^{10} | 3.90×10^9 | 2.81×10^9 | 2.53×10^8 |
| 2" | 3.81×10^{10} | 3.47×10^9 | 3.02×10^9 | 3.90×10^8 |
| 3" | 3.47×10^{10} | 8.62×10^8 | 1.68×10^9 | 2.93×10^8 |
| 4" | 3.87×10^{10} | 3.23×10^9 | 3.60×10^9 | 6.15×10^8 |
| 5" | 4.53×10^{10} | 4.07×10^9 | 3.02×10^9 | 9.00×10^7 |
| 6 | 3.02×10^{10} | 2.12×10^8 | 2.85×10^8 | 2.57×10^7 |
| 7 | 4.58×10^{10} | 2.91×10^8 | 2.85×10^8 | 2.40×10^8 |
| 8 | 2.25×10^{10} | 2.33×10^8 | 2.85×10^8 | 2.57×10^7 |
| 9 | 1.69×10^{10} | 2.22×10^8 | 1.77×10^8 | 2.12×10^7 |
| 10 | 1.98×10^{10} | 1.50×10^8 | 1.94×10^8 | 1.78×10^7 |
| 11* | 3.23×10^{10} | 6.15×10^9 | 1.63×10^9 | 1.38×10^9 |
| 12" | 4.07×10^{10} | 1.79×10^9 | 1.75×10^9 | 1.03×10^9 |
| Days Exposed | 0 | 1 | 2 | 3 |
| 1" | 3.02×10^{11} | 9.42×10^8 | 6.81×10^8 | 3.02×10^8 |
| 2" | 2.49×10^{11} | 1.46×10^9 | 4.44×10^9 | 4.44×10^8 |
| 3" | 2.07×10^{11} | 1.04×10^9 | 5.55×10^8 | 2.40×10^8 |
| 4" | 2.49×10^{11} | 1.29×10^9 | 5.46×10^9 | 5.46×10^8 |
| 5" | 1.71×10^{11} | 1.33×10^9 | 4.00×10^8 | 4.90×10^8 |
| 6 | 2.07×10^{11} | 7.86×10^6 | 1.29×10^8 | 8.11×10^5 |
| 7 | 1.66×10^{11} | 1.62×10^7 | 1.66×10^6 | 1.94×10^6 |
| 8 | 2.77×10^{11} | 1.39×10^7 | 4.44×10^7 | 2.10×10^6 |
| 9 | 2.77×10^{11} | 9.00×10^6 | 6.08×10^6 | 2.00×10^6 |
| 10 | 2.49×10^{11} | 4.91×10^6 | 6.06×10^5 | 2.29×10^6 |
| 11* | 1.77×10^{11} | 1.98×10^{10} | 1.01×10^{10} | 4.94×10^9 |
| 12* | 1.77×10^{11} | 2.17×10^{10} | 1.37×10^{10} | 1.65×10^{10} |
| Days Exposed | 4 | 5 | 6 | 7 |
| " Enclosed | | | | |
| * Control | | | | |

TABLE 22

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 1
 SPECIMEN TERMINAL BOARDS
 DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1" | 5.46×10^8 | 4.90×10^8 | 3.75×10^8 | 9.87×10^7 |
| 2" | 6.15×10^8 | 5.46×10^8 | 7.04×10^8 | 1.63×10^8 |
| 3" | 3.47×10^8 | 3.23×10^8 | 3.75×10^8 | 1.22×10^8 |
| 4" | 5.46×10^8 | 5.46×10^8 | 6.57×10^8 | 2.53×10^8 |
| 5" | 6.15×10^8 | 6.57×10^8 | 4.90×10^8 | 2.34×10^8 |
| 6 | 3.17×10^8 | 8.09×10^6 | 1.10×10^6 | 6.13×10^5 |
| 7 | 4.56×10^6 | 6.14×10^6 | 1.38×10^6 | 9.23×10^5 |
| 8 | 9.00×10^6 | 8.26×10^6 | 1.78×10^6 | 2.12×10^6 |
| 9 | 2.85×10^6 | 3.54×10^6 | 1.17×10^6 | 9.23×10^5 |
| 10 | 5.47×10^6 | 9.00×10^6 | 2.33×10^6 | 1.94×10^6 |
| 11* | 9.90×10^9 | 7.59×10^9 | 6.57×10^9 | 1.22×10^{10} |
| 12* | 1.24×10^{10} | 1.08×10^{11} | 9.52×10^{10} | 1.37×10^{10} |
| Days Exposed | 8 | 9 | 10 | 11 |
| 1" | 1.22×10^8 | 1.09×10^8 | 9.87×10^7 | 3.02×10^8 |
| 2" | 1.59×10^8 | 1.90×10^8 | 1.72×10^8 | 2.07×10^8 |
| 3" | 1.33×10^8 | 1.22×10^8 | 1.42×10^8 | 1.41×10^8 |
| 4" | 2.46×10^8 | 2.93×10^8 | 2.94×10^8 | 2.53×10^8 |
| 5" | 2.63×10^8 | 3.75×10^8 | 4.07×10^8 | 3.47×10^8 |
| 6 | 1.42×10^7 | 5.62×10^5 | 5.15×10^5 | 4.64×10^7 |
| 7 | 1.42×10^7 | 1.17×10^6 | 6.67×10^5 | 6.95×10^5 |
| 8 | 2.40×10^7 | 2.33×10^6 | 2.03×10^6 | 1.86×10^6 |
| 9 | 1.51×10^7 | 8.52×10^5 | 6.13×10^5 | 4.28×10^5 |
| 10 | 2.07×10^7 | 1.78×10^6 | 2.12×10^5 | 7.86×10^5 |
| 11* | 2.40×10^{10} | 1.82×10^{10} | 1.90×10^{10} | 1.22×10^{10} |
| 12* | 4.07×10^{10} | 2.22×10^{10} | 2.76×10^{10} | 2.17×10^{10} |
| Days Exposed | 12 | 13 | 14 | 15 |
| " Enclosed | | | | |
| * Control | | | | |

TABLE 23

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN TERMINAL BOARDS

DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 13" | 4.07×10^{10} | 5.15×10^8 | 1.09×10^9 | 2.12×10^8 |
| 14" | 5.71×10^{10} | 8.52×10^8 | 2.10×10^9 | 4.00×10^8 |
| 15" | 5.16×10^{10} | 1.08×10^9 | 9.42×10^8 | 3.76×10^8 |
| 16" | 5.46×10^{10} | 1.43×10^9 | 9.42×10^8 | 5.25×10^8 |
| 17" | 6.57×10^{10} | 1.50×10^9 | 1.98×10^9 | 5.67×10^8 |
| 18 | 1.13×10^{11} | 1.90×10^8 | 5.15×10^7 | 1.38×10^7 |
| 19 | 4.90×10^{10} | 8.70×10^8 | 4.28×10^7 | 1.50×10^7 |
| 20 | 4.90×10^{10} | 1.50×10^8 | 5.62×10^7 | 2.03×10^7 |
| 21 | 1.24×10^{11} | 3.82×10^8 | 1.08×10^8 | 4.26×10^7 |
| 22 | 5.78×10^{10} | 1.90×10^8 | 7.24×10^7 | 1.90×10^6 |
| 23* | 5.16×10^{10} | 1.98×10^{10} | 1.24×10^{10} | 1.24×10^{10} |
| 24* | 6.15×10^{10} | 1.82×10^8 | 1.13×10^8 | 1.24×10^{10} |
| Days Exposed | 0 | 1 | 2 | 3 |
| 13" | 8.23×10^8 | 6.15×10^8 | 3.02×10^8 | 3.23×10^8 |
| 14" | 6.15×10^8 | 2.84×10^8 | 4.90×10^8 | 7.04×10^8 |
| 15" | 6.15×10^8 | 7.04×10^8 | 8.23×10^8 | 9.90×10^8 |
| 16" | 4.90×10^8 | 4.90×10^8 | 7.59×10^8 | 7.04×10^8 |
| 17" | 8.99×10^8 | 7.04×10^8 | 1.10×10^9 | 1.24×10^9 |
| 18 | 3.17×10^6 | 1.70×10^6 | 1.27×10^6 | 2.12×10^6 |
| 19 | 6.69×10^6 | 3.35×10^6 | 3.17×10^6 | 4.00×10^6 |
| 20 | 3.77×10^6 | 4.43×10^6 | 4.43×10^6 | 9.00×10^6 |
| 21 | 6.14×10^6 | 6.81×10^6 | 2.17×10^6 | 1.68×10^7 |
| 22 | 8.09×10^6 | 1.68×10^7 | 1.68×10^6 | 2.84×10^7 |
| 23* | 5.25×10^8 | 1.78×10^{10} | 2.49×10^{10} | 2.49×10^{10} |
| 24* | 6.14×10^8 | 1.78×10^{10} | 2.49×10^{10} | 2.49×10^{10} |
| Days Exposed | 4 | 5 | 6 | 7 |

" Enclosed

* Control

TABLE 23

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 1t 2

PHASE I

TEST 2

SPECIMEN TERMINAL BOARDS

DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|--|
| 13" | 2.17×10^8 | 6.15×10^8 | 3.60×10^8 | 1.98×10^8 | |
| 14" | 4.90×10^8 | 7.04×10^8 | 7.04×10^8 | 4.90×10^8 | |
| 15" | 2.07×10^8 | 6.15×10^8 | 7.04×10^8 | 3.02×10^8 | |
| 16" | 7.04×10^8 | 8.23×10^8 | 6.15×10^8 | 4.90×10^8 | |
| 17" | 1.00×10^8 | 1.42×10^9 | 1.24×10^9 | 8.32×10^8 | |
| 18" | 1.63×10^6 | 1.00×10^6 | 2.33×10^6 | 1.94×10^6 | |
| 19" | 3.54×10^6 | 5.25×10^6 | 7.33×10^6 | 6.14×10^6 | |
| 20" | 5.94×10^6 | 6.35×10^6 | 9.42×10^6 | 8.62×10^6 | |
| 21" | 3.17×10^6 | 4.68×10^6 | 8.62×10^6 | 7.33×10^6 | |
| 22" | 2.40×10^7 | 2.28×10^7 | 4.44×10^7 | 3.12×10^7 | |
| 23* | 1.78×10^{10} | 1.91×10^{10} | 2.26×10^{10} | 5.70×10^9 | |
| 24* | 2.07×10^{10} | 2.07×10^{10} | 2.07×10^{10} | 6.15×10^9 | |
| Days Exposed | 8 | 9 | 10 | 11 | |
| 13" | 1.42×10^8 | 1.37×10^8 | 1.42×10^8 | 5.94×10^7 | |
| 14" | 3.47×10^8 | 3.47×10^8 | 4.07×10^8 | 3.75×10^8 | |
| 15" | 1.62×10^8 | 2.53×10^8 | 2.40×10^8 | 2.53×10^8 | |
| 16" | 3.02×10^8 | 4.25×10^8 | 4.07×10^8 | 3.75×10^8 | |
| 17" | 4.90×10^8 | 5.16×10^8 | 6.15×10^8 | 5.46×10^8 | |
| 18" | 2.33×10^6 | 1.38×10^6 | 1.50×10^6 | 8.52×10^5 | |
| 19" | 9.00×10^6 | 2.75×10^6 | 4.56×10^6 | 4.56×10^6 | |
| 20" | 1.04×10^7 | 5.25×10^6 | 5.50×10^6 | 5.41×10^6 | |
| 21" | 6.81×10^6 | 2.91×10^6 | 4.60×10^6 | 6.50×10^6 | |
| 22" | 1.22×10^7 | 1.37×10^7 | 1.82×10^7 | 2.70×10^6 | |
| 23* | 1.18×10^{10} | 1.46×10^{10} | 1.46×10^{10} | 1.66×10^{10} | |
| 24* | 1.18×10^{10} | 6.21×10^9 | 1.55×10^{10} | 1.66×10^{10} | |
| Days Exposed | 12 | 13 | 14 | 15 | |

" Enclosed

* Control

TABLE 24

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN TERMINAL BOARD

DATA AVERAGE OF THE LOG Rx - TIME

| NO. | AVERAGE OF THE LOG Rx OF TEST 1 | | | | | | | |
|--------------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|
| 1-5" | 10.6024 | 9.4372 | 9.4244 | 8.4408 | 11.3672 | 9.0780 | 9.1126 | 8.5868 |
| 6-10 | 10.4036 | 8.3358 | 8.3766 | 7.5552 | 11.3636 | 6.9796 | 6.9090 | 6.2360 |
| 11-12* | 10.5795 | 9.5210 | 9.2340 | 9.0765 | 11.2180 | 10.3170 | 10.0705 | 9.9560 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1-5" | 8.7184 | 8.6982 | 8.7008 | 8.2128 | 8.2460 | 8.2886 | 8.2890 | 8.3776 |
| 6-10 | 6.6622 | 6.8244 | 6.1732 | 6.0664 | 7.2358 | 6.0730 | 5.7916 | 6.2610 |
| 11-12* | 10.0445 | 10.4565 | 10.3485 | 10.1115 | 10.4550 | 10.3030 | 10.3600 | 10.2115 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

| NO. | AVERAGE OF THE LOG Rx OF TEST 2 | | | | | | | |
|--------------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|
| 13-17" | 10.7270 | 9.0400 | 9.1324 | 8.5254 | 8.8274 | 8.7468 | 8.8012 | 8.8588 |
| 18-22 | 10.8576 | 8.4528 | 7.7972 | 7.1064 | 6.6796 | 6.6318 | 6.3626 | 6.9120 |
| 23-24* | 10.7510 | 9.2785 | 9.0730 | 10.0930 | 8.7540 | 10.2500 | 10.3960 | 10.3960 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13-17" | 8.6374 | 8.8286 | 8.8268 | 8.6118 | 8.4144 | 8.4042 | 8.5082 | 8.4124 |
| 18-22 | 6.6832 | 6.7102 | 6.9578 | 6.8810 | 6.8514 | 6.5832 | 6.7024 | 6.5172 |
| 23-24* | 10.2630 | 10.2985 | 10.3350 | 9.7755 | 10.0720 | 9.9785 | 10.1770 | 10.2200 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Exposed
 * Control
 Rx resistance

TABLE 25

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 It 2

PHASE I

TESTS 1 & 2

SPECIMEN TERMINAL BOARD

DATA AVERAGE OF THE LOG Rx - TIME

AVERAGE OF THE LOG Rx OF TESTS 1 & 2

| | | | | | | | | |
|----------|---------|--------|--------|--------|---------|--------|--------|--------|
| Enclosed | 10.6647 | 9.2386 | 9.2784 | 8.5231 | 10.0973 | 8.9124 | 8.5569 | 8.7228 |
| Exposed | 10.6306 | 8.3943 | 8.0869 | 7.3306 | 9.0216 | 6.8357 | 6.6358 | 6.5740 |
| Days | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Exposed | | | | | | | | |

| | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|
| Enclosed | 8.6779 | 8.7584 | 8.7636 | 8.4123 | 8.3302 | 8.3864 | 8.3986 | 8.3950 |
| Exposed | 6.6727 | 6.7673 | 6.5655 | 6.4737 | 7.0436 | 6.3781 | 6.2470 | 6.3891 |
| Days | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Exposed | | | | | | | | |

Rx Resistance

TABLE 26

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN PHENOLITE

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 1" | 0.5 | 250 | 10 ⁹ | 0.6 | 250 | 10 ⁸ | 1.6 | 250 | 10 ⁸ | 1.6 | 250 | 10 ⁸ |
| 2" | 3.2 | 250 | " | 2.0 | 250 | " | 2.6 | 250 | " | 6.6 | 250 | " |
| 3" | 1.3 | 250 | " | 5.4 | 250 | " | 2.2 | 250 | " | 2.6 | 100 | " |
| 4" | 4.5 | 250 | " | 2.7 | 250 | " | 2.5 | 250 | " | 2.8 | 100 | " |
| 5" | 0.5 | 250 | " | 0.4 | 250 | " | 1.3 | 250 | " | 2.4 | 250 | " |
| 6 | 1.7 | 250 | " | 3.0 | 100 | " | 2.8 | 100 | " | 2.6 | 25 | " |
| 7 | 3.3 | 250 | " | 0.8 | 250 | " | 5.1 | 100 | " | 3.8 | 10 | " |
| 8 | 5.2 | 250 | " | 3.8 | 100 | " | 3.7 | 100 | " | 2.0 | 25 | " |
| 9 | 3.2 | 250 | " | 5.5 | 100 | " | 1.5 | 250 | " | 1.9 | 25 | " |
| 10 | 0.5 | 250 | " | 3.6 | 250 | " | 0.4 | 250 | " | 1.6 | 25 | " |
| 11* | 1.4 | 250 | " | 5.4 | 250 | 10 ⁹ | 1.2 | 250 | 10 ⁹ | 5.6 | 100 | 10 ⁹ |
| 12* | 1.7 | 250 | " | 4.8 | 250 | " | 4.5 | 250 | " | 7.4 | 100 | " |

Days
Exposed

0

1

2

3

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|------|----------------|-----------------|
| 1" | 1.0 | 100 | 10 ⁸ | 1.6 | 250 | 10 ⁸ | 3.2 | 100 | 10 ⁷ | 2.5 | 100 | 10 ⁸ |
| 2" | 7.0 | 250 | " | 3.6 | 250 | " | 2.2 | 100 | " | 4.2 | 100 | " |
| 3" | 2.6 | 100 | " | 2.4 | 100 | " | 4.0 | 100 | " | 4.3 | 100 | " |
| 4" | 2.4 | 250 | " | 4.8 | 100 | " | 1.8 | 100 | " | 4.3 | 100 | " |
| 5" | 3.1 | 250 | " | 1.8 | 250 | " | 2.0 | 100 | " | 0.6 | 100 | " |
| 6 | 1.3 | 250 | 10 ⁷ | 2.3 | 100 | " | 7.4 | 10 | " | 0.6 | 250 | 10 ⁷ |
| 7 | 3.0 | 250 | " | 1.0 | 25 | " | 3.5 | 25 | 10 ⁶ | 1.5 | 250 | " |
| 8 | 1.5 | 250 | " | 1.4 | 25 | " | 2.1 | 25 | " | 0.35 | 250 | " |
| 9 | 3.9 | 100 | " | 2.8 | 25 | " | 3.7 | 25 | " | 1.25 | 250 | " |
| 10 | 7.5 | 250 | " | 3.8 | 100 | " | 3.4 | 25 | " | 0.3 | 250 | " |
| 11* | 2.8 | 100 | 10 ⁹ | 2.0 | 250 | " | 2.0 | 25 | 10 ⁹ | 1.0 | 100 | 10 ⁸ |
| 12* | 3.5 | 100 | " | 3.7 | 250 | " | 1.5 | 25 | " | 1.0 | 100 | " |

Days
Exposed

4

5

6

7

E - Volts

E₀ - VoltsR_s - Ohms

" Enclosed

* Control

TABLE 26

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 1
 SPECIMEN PUTNOLITE
 DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|--------------|-----|----------------|-----------------|-----|----------------|-----------------|------|----------------|-----------------|-----|----------------|-----------------|
| 1" | 2.3 | 100 | 10 ⁸ | 2.3 | 250 | 10 ⁸ | 0.2 | 100 | 10 ⁸ | 3.6 | 100 | 10 ⁸ |
| 2" | 2.2 | 100 | " | 3.0 | 100 | " | 2.1 | 100 | " | 1.3 | 100 | " |
| 3" | 4.4 | 100 | " | 3.2 | 100 | " | 1.6 | 100 | " | 3.8 | 100 | " |
| 4" | 4.6 | 100 | " | 2.5 | 100 | " | 2.1 | 100 | " | 2.0 | 25 | " |
| 5" | 2.2 | 100 | " | 2.2 | 100 | " | 0.6 | 100 | " | 4.3 | 100 | " |
| 6 | | | | | | | | | | 5.9 | 25 | 10 ⁷ |
| 7 | | | | | | | | | | 3.0 | 25 | " |
| 8 | | | | | | | | | | 4.8 | 100 | " |
| 9 | | | | | | | | | | 4.3 | 100 | " |
| 10 | | | | | | | | | | 6.0 | 100 | " |
| 11* | | | | | | | | | | 1.4 | 100 | 10 ⁸ |
| 12* | | | | | | | | | | 1.0 | 100 | " |
| Days Exposed | 8 | | | 9 | | | 10 | | | 11 | | |
| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
| 1" | 2.3 | 10 | 10 ⁸ | 2.8 | 250 | 10 ⁷ | 1.8 | 250 | 10 ⁷ | 2.0 | 250 | 10 ⁷ |
| 2" | 2.0 | 10 | " | 1.4 | 250 | " | 0.25 | 250 | " | 1.2 | 250 | " |
| 3" | 2.2 | 10 | " | 3.6 | 250 | " | 1.35 | 250 | " | 2.3 | 250 | " |
| 4" | 2.0 | 25 | " | 4.2 | 250 | 10 ⁸ | 0.8 | 250 | " | 2.4 | 250 | " |
| 5" | 3.5 | 10 | " | 3.1 | 100 | " | 0.25 | 250 | " | 1.8 | 250 | " |
| 6 | | | | 3.3 | 100 | 10 ⁷ | | | | 3.0 | 100 | " |
| 7 | | | | 2.4 | 25 | " | | | | 5.6 | 100 | " |
| 8 | | | | 2.6 | 100 | " | | | | 1.2 | 250 | " |
| 9 | | | | 2.0 | 250 | " | | | | 3.6 | 250 | " |
| 10 | | | | 0.6 | 250 | " | | | | 1.4 | 250 | " |
| 11* | | | | 0.5 | 250 | 10 ⁸ | | | | 1.8 | 250 | 10 ⁸ |
| 12* | | | | 0.8 | 250 | " | | | | 1.7 | 250 | " |
| Days Exposed | 12 | | | 13 | | | 14 | | | 15 | | |

E - Volts
 E₀ - Volts
 R_s - Ohms

" Enclosed
 * Control

TABLE 27

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN PHENOLITE

DATA RESISTANCE TESTS-DIFFERENTS-TIME

| NO. | T | E _o | R _s | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 0.6 | 250 | 10 ⁹ | 3.8 | 100 | 10 ⁹ | 3.8 | 25 | 10 ⁹ | 4.8 | 100 | 10 ⁸ |
| 14" | 0.8 | 250 | " | 4.9 | 100 | " | 5.7 | 100 | " | 4.1 | 100 | " |
| 15" | 0.7 | 250 | " | 1.6 | 100 | " | 5.8 | 100 | " | 2.3 | 100 | " |
| 16" | 0.3 | 250 | " | 2.5 | 100 | " | 4.7 | 100 | " | 3.3 | 100 | " |
| 17" | 0.3 | 250 | " | 2.5 | 100 | " | 3.3 | 25 | " | 5.4 | 100 | " |
| 18 | 1.1 | 250 | " | 3.7 | 10 | " | 5.5 | 10 | " | 6.4 | 10 | " |
| 19 | 0.9 | 250 | " | 1.4 | 25 | " | 3.2 | 10 | " | 4.5 | 10 | " |
| 20 | 1.0 | 250 | " | 3.1 | 100 | " | 1.1 | 10 | " | 1.1 | 25 | " |
| 21 | 0.5 | 250 | " | 4.1 | 100 | " | 1.0 | 10 | " | 1.0 | 25 | " |
| 22 | 0.4 | 250 | " | 2.5 | 100 | " | 1.5 | 25 | " | 2.6 | 25 | " |
| 23* | 0.7 | 250 | " | 1.3 | 250 | " | 3.0 | 250 | " | 4.8 | 250 | 10 ⁹ |
| 24* | 1.4 | 250 | " | 4.0 | 250 | " | 2.7 | 100 | " | 4.4 | 100 | " |

Days

Exposed

0

1

2

3

| NO. | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 1.0 | 250 | 10 ⁷ | 1.6 | 250 | 10 ⁷ | 3.1 | 250 | 10 ⁸ | 6.2 | 100 | 10 ⁸ |
| 14" | 0.8 | 250 | " | 2.4 | 250 | " | 3.5 | 250 | " | 2.7 | 100 | " |
| 15" | 0.4 | 250 | " | 0.3 | 250 | " | 5.2 | 250 | " | 1.2 | 100 | " |
| 16" | 0.3 | 250 | " | 0.9 | 250 | " | 1.4 | 250 | " | 1.0 | 100 | " |
| 17" | 1.1 | 250 | " | 1.0 | 250 | " | 4.0 | 100 | " | 3.1 | 100 | " |
| 18 | 1.6 | 25 | " | 0.9 | 25 | " | | | | 2.9 | 10 | 10 ⁷ |
| 19 | 3.1 | 100 | " | 2.2 | 100 | " | | | | 5.6 | 100 | " |
| 20 | 0.6 | 100 | " | 0.8 | 100 | " | | | | 0.5 | 250 | " |
| 21 | 0.4 | 100 | " | 0.4 | 100 | " | | | | 0.7 | 250 | " |
| 22 | 0.6 | 100 | " | 3.3 | 100 | " | | | | 2.4 | 250 | " |
| 23* | 2.5 | 250 | 10 ⁹ | 2.5 | 250 | 10 ⁹ | | | | 1.1 | 250 | 10 ⁹ |
| 24* | 6.1 | 250 | " | 6.1 | 250 | " | | | | 4.0 | 250 | " |

Days

Exposed

4

5

6

7

E - Volts

E_o - VoltsR_s - Ohms

" Enclosed

* Control

TABLE 27

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN PHENOLITE

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 2.3 | 100 | 10 ⁸ | 1.8 | 25 | 10 ⁸ | 3.1 | 100 | 10 ⁸ | 6.8 | 100 | 10 ⁸ |
| 14" | 6.2 | 100 | " | 1.1 | 250 | " | 0.5 | 250 | " | 7.0 | 100 | " |
| 15" | 1.6 | 100 | " | 1.7 | 250 | " | 2.0 | 250 | " | 7.0 | 100 | " |
| 16" | 5.0 | 100 | " | 2.0 | 250 | " | 5.1 | 250 | " | 7.1 | 100 | " |
| 17" | 3.4 | 100 | " | 3.8 | 100 | " | 2.5 | 250 | " | 2.2 | 25 | " |
| 18 | | | | | | | | | | 2.8 | 10 | 10 ⁷ |
| 19 | | | | | | | | | | 3.2 | 250 | " |
| 20 | | | | | | | | | | 3.2 | 100 | " |
| 21 | | | | | | | | | | 5.4 | 250 | " |
| 22 | | | | | | | | | | 3.0 | 250 | " |
| 23* | | | | | | | | | | 4.0 | 250 | 10 ⁹ |
| 24* | | | | | | | | | | 4.2 | 100 | " |

Days
Exposed

8

9

10

11

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|-----|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|-----|----------------|-----------------|
| 13" | 4.4 | 250 | 10 ⁷ | 1.8 | 100 | 10 ⁷ | 2.4 | 100 | 10 ⁷ | 1.6 | 100 | 10 ⁷ |
| 14" | 7.4 | 250 | " | 5.0 | 250 | " | 2.3 | 100 | " | 1.5 | 250 | " |
| 15" | 4.6 | 250 | " | 3.2 | 250 | " | 2.3 | 250 | " | 4.2 | 250 | " |
| 16" | 4.4 | 250 | " | 3.4 | 250 | " | 1.8 | 250 | " | 3.9 | 250 | " |
| 17" | 3.5 | 250 | " | 2.8 | 100 | " | 2.8 | 100 | " | 2.1 | 100 | " |
| 18 | | | | 3.4 | 250 | 10 ⁶ | | | | 4.2 | 25 | " |
| 19 | | | | 3.2 | 100 | 10 ⁷ | | | | 5.8 | 100 | " |
| 20 | | | | 1.8 | 100 | " | | | | 3.1 | 100 | " |
| 21 | | | | 4.9 | 250 | " | | | | 6.0 | 100 | " |
| 22 | | | | 2.5 | 250 | " | | | | 6.4 | 100 | " |
| 23* | | | | 5.1 | 250 | 10 ⁹ | | | | 4.5 | 250 | 10 ⁹ |
| 24* | | | | 5.2 | 100 | " | | | | 4.0 | 100 | " |

Days
Exposed

12

13

14

15

E - Volts

E₀ - VoltsR_s - Ohms

" Enclosed

* Control

TABLE 28

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

TAAC T- 53-107 It 2

PHASE I

TEST 1

SPECIMEN PHENOLITE

DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1" | 4.09×10^{11} | 4.16×10^{10} | 1.55×10^{10} | 1.55×10^{10} |
| 2" | 7.71×10^{10} | 1.24×10^{10} | 2.52×10^9 | 3.69×10^9 |
| 3" | 1.21×10^{11} | 4.53×10^9 | 1.13×10^{10} | 3.75×10^9 |
| 4" | 5.46×10^{10} | 2.16×10^9 | 9.90×10^9 | 3.47×10^9 |
| 5" | 4.99×10^{11} | 6.24×10^{10} | 1.91×10^{10} | 1.03×10^{10} |
| 6 | 1.46×10^{11} | 3.23×10^9 | 3.47×10^9 | 6.62×10^8 |
| 7 | 7.48×10^{10} | 3.12×10^{10} | 1.66×10^9 | 1.63×10^8 |
| 8 | 4.71×10^{10} | 6.48×10^9 | 3.23×10^9 | 1.15×10^9 |
| 9 | 7.71×10^{10} | 1.72×10^9 | 1.66×10^{10} | 1.22×10^9 |
| 10 | 4.99×10^{11} | 6.84×10^9 | 6.24×10^{10} | 1.46×10^9 |
| 11* | 1.78×10^{11} | 4.53×10^{10} | 2.07×10^{11} | 1.69×10^{10} |
| 12* | 1.46×10^{11} | 5.11×10^{10} | 5.46×10^{10} | 1.25×10^{10} |
| Days Exposed | 0 | 1 | 2 | 3 |
| 1" | 9.90×10^9 | 1.55×10^{10} | 3.02×10^8 | 4.25×10^9 |
| 2" | 3.47×10^9 | 6.84×10^9 | 4.44×10^8 | 2.28×10^9 |
| 3" | 3.75×10^9 | 4.07×10^9 | 2.40×10^8 | 2.22×10^9 |
| 4" | 1.03×10^{10} | 1.98×10^9 | 5.46×10^8 | 1.98×10^9 |
| 5" | 7.96×10^9 | 1.38×10^{10} | 4.90×10^8 | 1.66×10^{10} |
| 6 | 1.91×10^{10} | 4.25×10^9 | 3.51×10^6 | 4.16×10^{10} |
| 7 | 8.23×10^9 | 2.40×10^9 | 6.14×10^7 | 1.66×10^{10} |
| 8 | 1.66×10^{10} | 1.68×10^9 | 1.00×10^8 | 7.13×10^{10} |
| 9 | 2.46×10^{10} | 7.93×10^8 | 5.76×10^7 | 1.99×10^{10} |
| 10 | 3.23×10^9 | 2.53×10^9 | 6.35×10^7 | 8.32×10^{10} |
| 11* | 3.47×10^{10} | 1.24×10^{10} | 1.15×10^{10} | 9.90×10^9 |
| 12* | 2.76×10^{10} | 6.66×10^9 | 1.57×10^{10} | 9.90×10^9 |
| Days Exposed | 4 | 5 | 6 | 7 |

" Enclosed

* Control

TABLE 28

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 It 2
 PHASE I
 TEST 1
 SPECIMEN PHENOLITE
 DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|--------------------|-----------------------|-----------------------|-----------------------|
| 1" | 4.25×10^9 | 1.08×10^{10} | 4.99×10^{10} | 2.68×10^9 |
| 2" | 4.44×10^9 | 3.23×10^9 | 4.66×10^9 | 7.59×10^9 |
| 3" | 2.17×10^9 | 3.02×10^9 | 6.15×10^9 | 2.53×10^9 |
| 4" | 2.07×10^9 | 3.90×10^9 | 4.66×10^9 | 1.15×10^9 |
| 5" | 4.44×10^9 | 4.44×10^9 | 1.66×10^{10} | 2.22×10^9 |
| 6 | | | | 3.24×10^8 |
| 7 | | | | 7.33×10^7 |
| 8 | | | | 1.98×10^8 |
| 9 | | | | 2.22×10^8 |
| 10 | | | | 1.57×10^8 |
| 11* | | | | 7.04×10^9 |
| 12* | | | | 9.90×10^9 |
| Days Exposed | 8 | 9 | 10 | 11 |
| 1" | 3.35×10^8 | 8.82×10^8 | 1.38×10^8 | 1.24×10^9 |
| 2" | 4.00×10^8 | 1.70×10^9 | 9.90×10^9 | 2.07×10^9 |
| 3" | 3.54×10^8 | 6.84×10^8 | 1.04×10^9 | 1.08×10^9 |
| 4" | 1.15×10^8 | 5.85×10^9 | 3.12×10^9 | 1.03×10^9 |
| 5" | 1.86×10^8 | 3.13×10^9 | 9.79×10^9 | 1.38×10^9 |
| 6 | | 2.93×10^8 | | 3.23×10^8 |
| 7 | | 8.42×10^7 | | 1.68×10^8 |
| 8 | | 3.75×10^8 | | 2.07×10^9 |
| 9 | | 1.24×10^9 | | 6.84×10^8 |
| 10 | | 4.16×10^9 | | 1.78×10^9 |
| 11* | | 4.99×10^{10} | | 1.38×10^{10} |
| 12* | | 3.12×10^{10} | | 1.46×10^{10} |
| Days Exposed | 12 | 13 | 14 | 15 |

" Enclosed
 * Control

TABLE 29

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 It 2
 PHASE I
 TEST 2
 SPECIMEN PHENOLITE
 DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 13" | 4.16×10^{11} | 2.53×10^{10} | 5.58×10^9 | 1.98×10^9 |
| 14" | 3.12×10^{11} | 1.94×10^{10} | 1.65×10^{10} | 2.34×10^9 |
| 15" | 3.56×10^{11} | 6.15×10^{10} | 1.62×10^{10} | 4.25×10^9 |
| 16" | 3.12×10^{11} | 3.90×10^{10} | 2.03×10^{10} | 2.93×10^9 |
| 17" | 8.32×10^{11} | 3.40×10^{10} | 6.58×10^9 | 1.75×10^9 |
| 18 | 2.26×10^{11} | 1.70×10^9 | 5.38×10^8 | 5.62×10^6 |
| 19 | 2.77×10^{11} | 1.66×10^{10} | 2.12×10^9 | 1.22×10^8 |
| 20 | 2.49×10^{11} | 3.12×10^{10} | 8.09×10^9 | 2.17×10^9 |
| 21 | 4.99×10^{11} | 2.34×10^{10} | 2.00×10^9 | 2.40×10^9 |
| 22 | 6.24×10^{11} | 3.90×10^{10} | 1.57×10^9 | 5.94×10^8 |
| 23* | 3.56×10^{11} | 1.36×10^{11} | 8.23×10^{10} | 5.11×10^{10} |
| 24* | 1.78×10^{11} | 6.15×10^{10} | 9.16×10^{10} | 2.17×10^{10} |
| Days Exposed | 0 | 1 | 2 | 3 |
| 13" | 2.49×10^9 | 1.55×10^9 | 7.96×10^9 | 1.51×10^9 |
| 14" | 3.12×10^9 | 1.03×10^9 | 6.84×10^9 | 3.60×10^9 |
| 15" | 6.24×10^9 | 8.32×10^9 | 4.71×10^9 | 6.23×10^9 |
| 16" | 8.32×10^9 | 2.77×10^9 | 1.78×10^{10} | 9.90×10^9 |
| 17" | 2.26×10^9 | 2.49×10^9 | 2.40×10^9 | 3.12×10^9 |
| 18 | 1.46×10^8 | 2.68×10^8 | | 2.45×10^7 |
| 19 | 3.13×10^8 | 4.44×10^8 | | 1.68×10^8 |
| 20 | 1.66×10^9 | 1.24×10^9 | | 5.00×10^9 |
| 21 | 2.49×10^9 | 2.49×10^9 | | 3.56×10^9 |
| 22 | 1.66×10^9 | 2.93×10^8 | | 1.03×10^9 |
| 23* | 9.90×10^{10} | 9.90×10^{10} | | 2.26×10^{11} |
| 24* | 4.00×10^{10} | 4.00×10^{10} | | 6.15×10^{11} |
| Days Exposed | 4 | 5 | 6 | 7 |

" Enclosed
 * Control

TABLE 29

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 It 2
 PHASE I
 TEST 2
 SPECIMEN PHENOLITE
 DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|--------------------|-----------------------|-----------------------|-----------------------|
| 13" | 4.25×10^9 | 1.29×10^9 | 3.13×10^9 | 1.37×10^9 |
| 14" | 1.51×10^9 | 1.78×10^{10} | 4.99×10^{10} | 1.33×10^9 |
| 15" | 6.15×10^9 | 1.46×10^{10} | 1.24×10^{10} | 1.33×10^9 |
| 16" | 1.90×10^9 | 1.24×10^{10} | 4.53×10^9 | 1.25×10^9 |
| 17" | 2.84×10^9 | 2.53×10^9 | 9.90×10^9 | 1.04×10^9 |
| 18 | | | | 2.57×10^7 |
| 19 | | | | 7.71×10^8 |
| 20 | | | | 3.02×10^8 |
| 21 | | | | 4.53×10^8 |
| 22 | | | | 8.23×10^8 |
| 23* | | | | 6.15×10^{10} |
| 24* | | | | 2.28×10^{10} |
| Days Exposed | 8 | 9 | 10 | 11 |
| 13" | 5.58×10^8 | 5.46×10^8 | 4.07×10^8 | 6.15×10^8 |
| 14" | 3.28×10^8 | 4.80×10^8 | 4.25×10^8 | 5.46×10^8 |
| 15" | 5.33×10^8 | 7.71×10^8 | 1.08×10^9 | 5.85×10^8 |
| 16" | 5.58×10^8 | 7.25×10^8 | 1.38×10^9 | 6.31×10^8 |
| 17" | 7.04×10^8 | 3.47×10^8 | 3.47×10^8 | 4.07×10^8 |
| 18 | | 7.25×10^7 | | 4.95×10^7 |
| 19 | | 3.02×10^7 | | 1.37×10^8 |
| 20 | | 5.46×10^7 | | 2.84×10^8 |
| 21 | | 5.00×10^7 | | 1.57×10^8 |
| 22 | | 9.00×10^7 | | 1.46×10^8 |
| 23* | | 4.80×10^{10} | | 5.45×10^{10} |
| 24* | | 1.82×10^{10} | | 2.40×10^{10} |
| Days Exposed | 12 | 13 | 14 | 15 |

" Enclosed

* Control

TABLE 30

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 It 2
 PHASE I
 TESTS 1 & 2
 SPECIMEN PHENOLITE
 DATA AVERAGE OF THE LOG Rx - TIME

| NO. | AVERAGE OF THE LOG Rx OF TEST 1 | | | | | | | |
|--------|---------------------------------|---------|---------|---------|---------|--------|---------|---------|
| 1-5" | 11.2602 | 10.2250 | 10.0998 | 9.7768 | 9.8048 | 9.8114 | 8.5868 | 9.5608 |
| 6-10 | 11.0592 | 9.7772 | 9.8668 | 8.8918 | 10.0632 | 9.3070 | 7.5866 | 10.5822 |
| 11-12* | 11.2070 | 10.6820 | 11.0265 | 10.1625 | 10.4905 | 9.9585 | 10.1285 | 9.9260 |

| | | | | | | | | |
|--------------|--------|--------|---------|--------|--------|---------|--------|---------|
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1-5" | 9.5154 | 9.6520 | 10.0086 | 9.4236 | 8.4014 | 9.2588 | 9.5798 | 9.1190 |
| 6-10 | | | | 8.2430 | | 8.7154 | | 8.8270 |
| 11-12* | | | | 9.9220 | | 10.5960 | | 10.1520 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

| NO. | AVERAGE OF THE LOG Rx OF TEST 2 | | | | | | | |
|--------|---------------------------------|---------|---------|---------|---------|---------|--------|---------|
| 13-17" | 11.6156 | 10.5324 | 10.0602 | 9.4008 | 9.5918 | 9.3924 | 9.8078 | 9.6280 |
| 18-22 | 11.5372 | 10.1824 | 9.4230 | 8.4654 | 8.4922 | 8.8062 | | 8.7754 |
| 23-24* | 11.4005 | 10.9645 | 10.9385 | 10.5225 | 10.7990 | 10.7990 | | 11.5715 |

| | | | | | | | | |
|--------------|--------|--------|--------|---------|--------|---------|--------|---------|
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13-17" | 9.4656 | 9.8042 | 9.9878 | 9.0728 | 8.7170 | 8.7428 | 8.7202 | 8.7406 |
| 18-22 | | | | 8.4656 | | 7.7460 | | 8.1290 |
| 23-24* | | | | 10.5735 | | 10.4705 | | 10.5580 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

" Exposed
 * Control
 Rx Resistance

TABLE 31

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 It 2
PHASE I
TESTS 1 & 2
SPECIMEN PHENOLITE
DATA AVERAGE OF THE LOG Rx - TIME

AVERAGE OF THE LOG Rx OF TESTS 1 & 2

| | | | | | | | | |
|--------------|---------|---------|---------|--------|--------|--------|--------|--------|
| Enclosed | 11.4379 | 10.3787 | 10.0000 | 9.5088 | 9.6983 | 9.6034 | 9.1973 | 9.5989 |
| Exposed | 11.2282 | 9.9798 | 9.6449 | 8.6286 | 9.4812 | 9.0566 | | 9.6788 |
| Days Exposed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Enclosed | 9.4905 | 9.7281 | 9.9982 | 9.2617 | 8.5592 | 9.0008 | 9.1850 | 8.9298 |
| Exposed | | | | 8.3563 | | 8.2457 | | 8.4780 |
| Days Exposed | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

Rx Resistance

TABLE 32

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN LUCITE

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
|--------------|------------|----------------|----------------|------------|----------------|------------------|------------|----------------|------------------|------------|----------------|------------------|
| 1 | No Reading | | | No Reading | | | No Reading | | | No Reading | | |
| 2 | " | | | " | | | " | | | " | | |
| 3* | " | | | " | | | " | | | " | | |
| 4* | " | | | " | | | " | | | " | | |
| 5 | " | | | " | | | " | | | " | | |
| 6 | " | | | " | | | " | | | " | | |
| 7 | " | | | " | | | " | | | " | | |
| Days Exposed | 0 | | | 1 | | | 2 | | | 3 | | |
| NO. | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s | E | E ₀ | R _s |
| 1 | No Reading | | | 0.02 | 250 | 10 ¹² | No Reading | | | No Reading | | |
| 2 | " | | | No Reading | | | No Reading | | | No Reading | | |
| 3* | " | | | 1.0 | 250 | 10 ¹⁰ | 1.4 | 100 | 10 ¹² | 2.4 | 250 | 10 ¹⁰ |
| 4* | " | | | 0.03 | 250 | 10 ¹² | 0.05 | 250 | 10 ¹² | 0.05 | 250 | 10 ¹² |
| 5 | " | | | No Reading | | | No Reading | | | No Reading | | |
| 6 | " | | | " | | | " | | | " | | |
| 7 | " | | | " | | | " | | | " | | |
| Days Exposed | 4 | | | 5 | | | 7 | | | 11 | | |

E - Volts

E₀ - VoltsR_s - Ohms

* Control

No Reading - Beyond Range of Instrument (10¹⁶ Ohms)

TABLE 32

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN LUCITE

DATA: RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s |
|---------|------------|----------------|------------------|------------|----------------|------------------|
| 1 | No Reading | | | No Reading | | |
| 2 | " | | | " | | |
| 3* | 0.05 | 250 | 10 ¹¹ | 0.20 | 250 | 10 ¹² |
| 4* | No Reading | | | No Reading | | |
| 5 | " | | | " | | |
| 6 | " | | | " | | |
| 7 | " | | | " | | |
| Days | | 13 | | | 15 | |
| Exposed | | | | | | |

E - Volts

E₀ - VoltsR_s - Ohms

* Control

No Reading - Beyond Range of Instrument (10¹⁶ Ohms)

TABLE 33

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2
PHASE I
TEST 2
SPECIMEN LUCITE
DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s |
|--------------|------------|----------------|----------------|------------|----------------|----------------|------------|----------------|----------------|------------|----------------|------------------|
| 8 | No Reading | | | No Reading | | | No Reading | | | 0.8 | 100 | 10 ¹² |
| 9 | " | | | " | | | " | | | 0.5 | 25 | " |
| 10 | " | | | " | | | " | | | 0.7 | 100 | " |
| 11 | " | | | " | | | " | | | 0.1 | 100 | " |
| 12 | " | | | " | | | " | | | 0.8 | 100 | 10 ¹² |
| 13* | " | | | " | | | " | | | No Reading | | |
| 14* | " | | | " | | | " | | | " | | |
| Days Exposed | 0 | | | 1 | | | 2 | | | 3 | | |

| NO. | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s | E | E _o | R _s |
|--------------|------------|----------------|----------------|------------|----------------|----------------|------------|----------------|------------------|------------|----------------|------------------|
| 8 | No Reading | | | No Reading | | | 0.05 | 250 | 10 ¹² | No Reading | | |
| 9 | " | | | " | | | 0.05 | 250 | " | " | | |
| 10 | " | | | " | | | 0.05 | 250 | " | " | | |
| 11 | " | | | " | | | 0.05 | 250 | " | " | | |
| 12 | " | | | " | | | 0.05 | 250 | " | " | | |
| 13* | " | | | " | | | No Reading | | | " | | |
| 14* | " | | | " | | | " | | | 0.05 | 250 | 10 ¹² |
| Days Exposed | 4 | | | 5 | | | 7 | | | 11 | | |

E - Volts
E_o - Volts
R_s - Ohms

* Control

No Reading - Beyond Range of Instrument (10¹⁶ Ohms)

TABLE 33

COMPARISON OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN LUCITE

DATA RESISTANCE MEASUREMENTS-TIME

| NO. | E | E ₀ | R _s | E | E ₀ | R _s |
|-----------------|------|----------------|------------------|------|----------------|------------------|
| 8 | 0.05 | 250 | 10 ¹² | 0.05 | 250 | 10 ¹² |
| 9 | 0.95 | 250 | " | 1.9 | 250 | " |
| 10 | 0.95 | 250 | " | 1.4 | 250 | " |
| 11 | 1.00 | 100 | " | 0.5 | 25 | " |
| 12 | 0.75 | 10 | " | 0.7 | 25 | " |
| 13* | 0.1 | 250 | " | 0.15 | 250 | " |
| 14* | 0.1 | 250 | " | 0.4 | 250 | 10 ¹² |
| Days Exposed | | 13 | | | 15 | |

E - Volts

E₀ - Volts

R_s - Ohms

* Control

No Reading - Beyond Range of Instrument (10¹⁶ Ohms)

TABLE 34

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 1t 2
 PHASE I
 TEST 1
 SPECIMEN LUCITE
 DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|-----------------------|-----------------------|--------------------|
| 1 | 1.25×10^{16} | No Data | No Data | No Data |
| 2 | No Data | " | " | " |
| 3* | 2.47×10^{12} | 7.04×10^{13} | 1.03×10^{12} | 5×10^{14} |
| 4* | 8.33×10^{15} | 5×10^{15} | 5×10^{15} | No Data |
| 5 | No Data | No Data | No Data | No Data |
| 6 | " | " | " | " |
| 7 | " | " | " | " |
| Days Exposed | 5 | 7 | 11 | 13 |
| 1 | No Data | | | |
| 2 | " | | | |
| 3* | 1.25×10^{15} | | | |
| 4* | No Data | | | |
| 5 | " | | | |
| 6 | " | | | |
| 7 | " | | | |
| Days Exposed | 15 | | | |

* Control

TABLE 35

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN LUCITE

DATA CALCULATED RESISTANCE-TIME

| NO. | RESISTANCE IN OHMS | | | |
|--------------|-----------------------|--------------------|--------------------|-----------------------|
| 8 | 1.24×10^{14} | 5×10^{15} | No Data | 5×10^{15} |
| 9 | 4.9×10^{13} | 5×10^{15} | " | 2.62×10^{14} |
| 10 | 1.42×10^{14} | 5×10^{15} | " | 2.62×10^{14} |
| 11 | 9.99×10^{14} | 5×10^{15} | " | 9.9×10^{13} |
| 12 | 1.24×10^{14} | 5×10^{15} | " | 1.23×10^{13} |
| 13* | No Data | No Data | " | 2.5×10^{15} |
| 14* | " | " | 5×10^{15} | 2.5×10^{15} |
| Days Exposed | 3 | 7 | 11 | 13 |
| 8 | 5×10^{15} | | | |
| 9 | 1.31×10^{14} | | | |
| 10 | 1.78×10^{14} | | | |
| 11 | 4.9×10^{13} | | | |
| 12 | 3.47×10^{13} | | | |
| 13* | 1.67×10^{15} | | | |
| 14* | 6.24×10^{14} | | | |
| Days Exposed | 15 | | | |

* Control

TABLE 36

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN STEEL

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS | NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|--------|-----------|------|--------|--------|-----------|
| X1" | 3.9922 | 2.0000 | 0.060 | X27 | 4.0000 | 2.0000 | 0.059 |
| X2" | 3.9844 | 2.0000 | 0.062 | X28 | 3.9844 | 2.0000 | 0.061 |
| X3" | 3.9844 | 2.0000 | 0.063 | X29 | 3.9844 | 2.0000 | 0.061 |
| X4" | 3.9844 | 2.0000 | 0.061 | X30 | 3.9844 | 2.0000 | 0.061 |
| X5" | 3.9922 | 2.0000 | 0.061 | X31 | 4.0000 | 2.0000 | 0.064 |
| X6 | 3.9844 | 2.0000 | 0.061 | X32 | 3.9844 | 2.0000 | 0.059 |
| X7 | 3.9766 | 2.0000 | 0.061 | X33 | 3.9844 | 2.0000 | 0.061 |
| X8 | 3.9922 | 2.0000 | 0.061 | X34 | 3.9844 | 2.0000 | 0.061 |
| X9 | 3.9766 | 2.0000 | 0.061 | X35 | 3.9844 | 2.0000 | 0.061 |
| X10 | 4.0000 | 2.0000 | 0.064 | X36 | 4.0000 | 2.0000 | 0.061 |
| X11 | 3.9922 | 2.0000 | 0.062 | X37 | 3.9844 | 2.0000 | 0.061 |
| X12 | 3.9844 | 2.0000 | 0.061 | X38 | 4.0000 | 2.0000 | 0.061 |
| X13 | 3.9922 | 2.0156 | 0.061 | X39 | 3.9844 | 2.0000 | 0.061 |
| X14 | 4.0000 | 2.0000 | 0.061 | X40 | 3.9844 | 2.0000 | 0.061 |
| X15 | 3.9844 | 2.0000 | 0.062 | X41 | 3.9844 | 2.0078 | 0.063 |
| X16 | 3.9844 | 2.0000 | 0.063 | X42 | 3.9844 | 2.0000 | 0.059 |
| X17 | 3.9844 | 2.0000 | 0.061 | X43 | 4.0000 | 2.0000 | 0.061 |
| X18 | 3.9922 | 2.0000 | 0.062 | X44 | 3.9844 | 2.0000 | 0.061 |
| X19 | 4.0000 | 2.0000 | 0.061 | X45 | 3.9844 | 2.0000 | 0.062 |
| X20 | 3.9844 | 2.0000 | 0.061 | X46 | 3.9844 | 2.0000 | 0.061 |
| X21 | 3.9844 | 2.0000 | 0.061 | X47 | 3.9922 | 2.0000 | 0.062 |
| X22 | 3.9844 | 2.0000 | 0.060 | X48 | 3.9844 | 2.0000 | 0.061 |
| X23 | 3.9844 | 2.0000 | 0.063 | X49 | 3.9922 | 2.0000 | 0.061 |
| X24 | 4.0000 | 2.0000 | 0.064 | X50 | 4.0000 | 2.0000 | 0.061 |
| X25 | 3.9922 | 2.0000 | 0.060 | X51* | 3.9844 | 2.0000 | 0.060 |
| X26 | 3.9844 | 2.0000 | 0.061 | X52* | 3.9922 | 2.0000 | 0.061 |

" Enclosed

* Control

TABLE 37

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN STEEL

DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS | | DAYS EXPOSED | NO. | WEIGHT IN GRAMS | | DAYS EXPOSED |
|-----|-----------------|---------|--------------|-----|-----------------|---------|--------------|
| | INITIAL | FINAL | | | INITIAL | FINAL | |
| X1" | 61.0849 | | 0 | X27 | 59.6600 | 59.6068 | 8 |
| X2" | 62.5510 | | | X28 | 62.1404 | 62.0614 | |
| X3" | 63.1394 | | | X29 | 61.8428 | 61.7453 | |
| X4" | 62.1932 | | | | | | |
| X5" | 61.7883 | | | X30 | 61.4691 | 61.3544 | 9 |
| | | | | X31 | 64.8918 | 64.8122 | |
| X6 | 61.7810 | 61.7604 | 1 | X32 | 61.1030 | 61.0305 | |
| X7 | 61.1424 | 61.1230 | | | | | |
| X8 | 61.5245 | 61.5050 | | X33 | 61.7808 | 61.7130 | 10 |
| | | | | X34 | 61.5212 | 61.4528 | |
| X9 | 61.1520 | 61.1034 | 2 | X35 | 61.3538 | 61.2972 | |
| X10 | 64.7208 | 64.6800 | | | | | |
| X11 | 62.6326 | 62.5960 | | X36 | 61.5500 | 61.4898 | 11 |
| | | | | X37 | 61.5494 | 61.4831 | |
| X12 | 61.5678 | 61.5213 | 3 | X38 | 61.6263 | 61.5569 | |
| X13 | 61.7393 | 61.6920 | | | | | |
| X14 | 61.4346 | 61.4004 | | X39 | 61.8102 | 61.7331 | 12 |
| | | | | X40 | 61.8764 | 61.7710 | |
| X15 | 62.4134 | 62.3680 | 4 | X41 | 63.5860 | 63.4827 | |
| X16 | 63.3813 | 63.3385 | | | | | |
| X17 | 61.7334 | 61.6940 | | X42 | 60.6825 | 60.5534 | 13 |
| | | | | X43 | 61.9425 | 61.8465 | |
| X18 | 63.1288 | 63.0820 | 5 | X44 | 61.0070 | 60.9107 | |
| X19 | 62.0608 | 62.0110 | | | | | |
| X20 | 61.3275 | 61.2760 | | X45 | 62.1616 | 62.0982 | 14 |
| | | | | X46 | 61.1310 | 61.0714 | |
| X21 | 60.9908 | 60.9252 | 6 | X47 | 62.0736 | 62.0082 | |
| X22 | 60.6098 | 60.5250 | | | | | |
| X23 | 63.6472 | 63.5494 | | X48 | 61.5834 | 61.5034 | 15 |
| | | | | X49 | 61.4402 | 61.3725 | |
| X24 | 64.6008 | 64.4848 | 7 | X50 | 61.3410 | 61.2854 | |
| X25 | 60.6943 | 60.5554 | | | | | |
| X26 | 61.8810 | 61.8014 | | | | | |

" Enclosed

TABLE 38

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN STEEL

DATA WEIGHT DECREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT DECREASE | DAYS EXPOSED | NO. | WEIGHT IN GRAMS WEIGHT DECREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|-----|------------------------------------|-----------------|
| X6 | 0.0266 | 1 | X30 | 0.1147 | 9 |
| X7 | 0.0194 | | X31 | 0.0796 | |
| X8 | 0.0195 | | X32 | 0.0725 | |
| X9 | 0.0486 | 2 | X33 | 0.0678 | 10 |
| X10 | 0.0408 | | X34 | 0.0684 | |
| X11 | 0.0366 | | X35 | 0.0566 | |
| X12 | 0.0465 | 3 | X36 | 0.0602 | 11 |
| X13 | 0.0473 | | X37 | 0.0663 | |
| X14 | 0.0342 | | X38 | 0.0694 | |
| X15 | 0.0454 | 4 | X39 | 0.0771 | 12 |
| X16 | 0.0882 | | X40 | 0.0994 | |
| X17 | 0.0394 | | X41 | 0.1033 | |
| X18 | 0.0468 | 5 | X42 | 0.1291 | 13 |
| X19 | 0.0498 | | X43 | 0.0960 | |
| X20 | 0.0495 | | X44 | 0.0963 | |
| X21 | 0.0656 | 6 | X45 | 0.1597 | 14 |
| X22 | 0.0848 | | X46 | 0.0596 | |
| X23 | 0.0978 | | X47 | 0.0654 | |
| X24 | 0.1160 | 7 | X48 | 0.0800 | 15 |
| X25 | 0.1389 | | X49 | 0.0677 | |
| X26 | 0.0796 | | X50 | 0.0556 | |
| X27 | 0.0532 | 8 | | | |
| X28 | 0.0790 | | | | |
| X29 | 0.1765 | | | | |

TABLE 39

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN STEEL

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS | NO. | LENGTH | WIDTH | THICKNESS |
|------|--------|--------|-----------|-------|--------|--------|-----------|
| X53" | 3.9844 | 2.0000 | 0.061 | X79 | 3.9220 | 2.0000 | 0.062 |
| X54" | 3.9922 | 2.0000 | 0.061 | X80 | 3.9220 | 2.0000 | 0.061 |
| X55" | 3.9922 | 2.0000 | 0.061 | X81 | 4.0000 | 2.0000 | 0.062 |
| X56" | 3.9922 | 2.0000 | 0.061 | X82 | 3.9844 | 2.0078 | 0.061 |
| X57" | 3.9922 | 2.0000 | 0.061 | X83 | 3.9844 | 2.0000 | 0.060 |
| X58 | 4.0000 | 2.0000 | 0.063 | X84 | 3.9844 | 2.0000 | 0.061 |
| X59 | 3.9844 | 2.0000 | 0.061 | X85 | 4.0000 | 2.0000 | 0.064 |
| X60 | 3.9844 | 2.0000 | 0.062 | X86 | 3.9844 | 2.0000 | 0.061 |
| X61 | 3.9844 | 2.0000 | 0.060 | X87 | 4.0000 | 2.0000 | 0.064 |
| X62 | 3.9844 | 2.0000 | 0.061 | X88 | 3.9844 | 2.0000 | 0.060 |
| X63 | 3.9922 | 2.0000 | 0.061 | X89 | 4.0000 | 2.0000 | 0.064 |
| X64 | 3.9922 | 2.0000 | 0.059 | X90 | 3.9220 | 2.0000 | 0.061 |
| X65 | 3.9844 | 2.0000 | 0.060 | X91 | 3.9922 | 2.0000 | 0.062 |
| X66 | 3.9844 | 2.0078 | 0.060 | X92 | 3.9844 | 2.0000 | 0.061 |
| X67 | 3.9844 | 2.0000 | 0.061 | X93 | 3.9844 | 2.0000 | 0.061 |
| X68 | 3.9922 | 2.0000 | 0.064 | X94 | 4.0000 | 2.0000 | 0.062 |
| X69 | 3.9844 | 2.0000 | 0.061 | X95 | 3.9844 | 2.0000 | 0.061 |
| X70 | 3.9844 | 2.0000 | 0.062 | X96 | 3.9844 | 2.0000 | 0.060 |
| X71 | 4.0000 | 2.0000 | 0.059 | X97 | 3.9844 | 2.0000 | 0.061 |
| X72 | 3.9844 | 2.0000 | 0.061 | X98 | 3.9922 | 2.0234 | 0.060 |
| X73 | 3.9844 | 2.0000 | 0.060 | X99 | 4.0000 | 2.0000 | 0.061 |
| X74 | 3.9922 | 2.0000 | 0.061 | X100 | 3.9922 | 2.0000 | 0.063 |
| X75 | 4.0000 | 2.0000 | 0.061 | X101 | 3.9922 | 2.0000 | 0.062 |
| X76 | 3.9922 | 2.0000 | 0.061 | X102 | 3.9844 | 2.0000 | 0.061 |
| X77 | 3.9844 | 2.0000 | 0.060 | X103* | 3.9922 | 2.0000 | 0.060 |
| X78 | 4.0000 | 2.0000 | 0.064 | X104* | 3.9922 | 2.0000 | 0.062 |

" Enclosed

* Control

TABLE 40

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 2
 SPECIMEN STEEL
 DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS | | DAYS EXPOSED | NO. | WEIGHT IN GRAMS | | DAYS EXPOSED |
|------|-----------------|---------|--------------|------|-----------------|---------|--------------|
| | INITIAL | FINAL | | | INITIAL | FINAL | |
| X53" | 60.9331 | | 0 | X79 | 62.6878 | 62.6553 | 8 |
| X54" | 64.5370 | | | X80 | 61.4328 | 61.4083 | |
| X55" | 62.7752 | | | X81 | 62.5942 | 62.5675 | |
| X56" | 61.4980 | | | X82 | 61.8164 | 61.7888 | 9 |
| X57" | 62.2105 | | | X83 | 60.8825 | 60.8446 | |
| X58 | 64.4775 | 64.4682 | 1 | X84 | 61.9324 | 61.9027 | |
| X59 | 61.3473 | 61.3346 | | X85 | 64.4134 | 64.3982 | 10 |
| X60 | 63.0124 | 63.0017 | | X86 | 61.5940 | 61.5735 | |
| X61 | 60.7754 | 60.7560 | 2 | X87 | 64.5534 | 64.5224 | |
| X62 | 61.5896 | 61.5713 | | X88 | 60.9991 | 60.9581 | 11 |
| X63 | 61.9152 | 61.8961 | | X89 | 64.4763 | 64.4394 | |
| X64 | 59.9518 | 59.9340 | 3 | X90 | 61.9836 | 61.8306 | |
| X65 | 60.6035 | 60.5863 | | X91 | 63.2445 | 63.2078 | 12 |
| X66 | 61.1974 | 61.1722 | | X92 | 61.8414 | 61.7950 | |
| X67 | 61.7006 | 61.6804 | 4 | X93 | 61.7173 | 61.6788 | |
| X68 | 64.8442 | 64.8256 | | X94 | 63.5708 | 63.5478 | 13 |
| X69 | 61.4860 | 61.4648 | | X95 | 61.3610 | 61.3430 | |
| X70 | 62.2364 | 62.2174 | 5 | X96 | 60.7164 | 60.7002 | |
| X71 | 59.7268 | 59.7054 | | X97 | 62.0354 | 62.0062 | 14 |
| X72 | 61.1216 | 61.0786 | | X98 | 61.9712 | 61.9442 | |
| X73 | 61.1050 | 61.0548 | 6 | X99 | 61.6377 | 61.6088 | |
| X74 | 62.1671 | 62.1108 | | X100 | 63.8077 | 63.7854 | 15 |
| X75 | 61.4181 | 61.3726 | | X101 | 63.1276 | 63.0934 | |
| X76 | 61.6094 | 61.5714 | 7 | X102 | 61.7130 | 61.6857 | |
| X77 | 61.0685 | 61.0361 | | | | | |
| X78 | 64.8137 | 64.7788 | | | | | |

" Enclosed

TABLE 41

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 2
 SPECIMEN STEEL
 DATA WEIGHT DECREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT DECREASE | DAYS EXPOSED | NO. | WEIGHT IN GRAMS WEIGHT DECREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|------|------------------------------------|-----------------|
| X58 | 0.0093 | 1 | X82 | 0.0276 | 9 |
| X59 | 0.0127 | | X83 | 0.0379 | |
| X60 | 0.0107 | | X84 | 0.0297 | |
| X61 | 0.0194 | 2 | X85 | 0.0152 | 10 |
| X62 | 0.0183 | | X86 | 0.0205 | |
| X63 | 0.0191 | | X87 | 0.0310 | |
| X64 | 0.0178 | 3 | X88 | 0.0110 | 11 |
| X65 | 0.0172 | | X89 | 0.0374 | |
| X66 | 0.0252 | | X90 | 0.0530 | |
| X67 | 0.0202 | 4 | X91 | 0.0367 | 12 |
| X68 | 0.0136 | | X92 | 0.0164 | |
| X69 | 0.0404 | | X93 | 0.0385 | |
| X70 | 0.0190 | 5 | X94 | 0.0230 | 13 |
| X71 | 0.0403 | | X95 | 0.0180 | |
| X72 | 0.0130 | | X96 | 0.0162 | |
| X73 | 0.0502 | 6 | X97 | 0.0292 | 14 |
| X74 | 0.0493 | | X98 | 0.0271 | |
| X75 | 0.0455 | | X99 | 0.0284 | |
| X76 | 0.0380 | 7 | X100 | 0.0223 | 15 |
| X77 | 0.0324 | | X101 | 0.0342 | |
| X78 | 0.0349 | | X102 | 0.0273 | |
| X79 | 0.0325 | 8 | | | |
| X80 | 0.0245 | | | | |
| X81 | 0.0267 | | | | |

TABLE A2

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 1 & 2
 SPECIMEN STEEL
 DATA WEIGHT DECREASE CALCULATIONS-TIME

| DAYS EXPOSED | WT. IN GRAMS AV. WT. DEC. (a) | GRAMS/DAY AV. WT. DEC./DAY (b) |
|-----------------|----------------------------------|-----------------------------------|
| 1 | 0.0164 | 0.0164 |
| 2 | 0.0305 | 0.0152 |
| 3 | 0.0314 | 0.0105 |
| 4 | 0.0421 | 0.0105 |
| 5 | 0.0414 | 0.0083 |
| 6 | 0.0655 | 0.0109 |
| 7 | 0.0735 | 0.0105 |
| 8 | 0.0654 | 0.0082 |
| 9 | 0.0603 | 0.0067 |
| 10 | 0.0433 | 0.0043 |
| 11 | 0.0546 | 0.0049 |
| 12 | 0.0669 | 0.0056 |
| 13 | 0.0632 | 0.0049 |
| 14 | 0.0617 | 0.0044 |
| 15 | 0.0479 | 0.0032 |

(a) Average weight decrease of tests 1 & 2

(b) Average rate = a/days exposed

TABLE 43

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ZINC COATED STEEL

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|--------|-----------|
| 1 | 3.9922 | 2.0000 | 0.064 |
| 2 | 3.9922 | 2.0000 | 0.063 |
| 3 | 3.9766 | 2.0000 | 0.063 |
| 4 | 3.9844 | 2.0000 | 0.063 |
| 5 | 3.9922 | 2.0000 | 0.064 |
| 6 | 3.9922 | 2.0000 | 0.064 |
| 7 | 4.0156 | 2.0000 | 0.063 |
| 8 | 3.9688 | 2.0000 | 0.063 |
| 9 | 3.9766 | 2.0000 | 0.064 |
| 10 | 3.9688 | 2.0000 | 0.063 |
| 11 | 3.9922 | 2.0000 | 0.064 |
| 12 | 3.9688 | 2.0000 | 0.063 |
| 13 | 3.9922 | 2.0000 | 0.064 |
| 14 | 3.9844 | 2.0000 | 0.064 |
| 15 | 3.9922 | 2.0000 | 0.064 |
| 16 | 3.9922 | 2.0000 | 0.064 |
| 17 | 3.9922 | 2.0000 | 0.063 |
| 18 | 3.9922 | 1.9922 | 0.064 |
| 19 | 3.9922 | 2.0000 | 0.064 |
| 20 | 3.9844 | 2.0000 | 0.062 |
| 21 | 3.9844 | 2.0000 | 0.062 |
| 22* | 3.9844 | 2.0000 | 0.063 |
| 23* | 4.0234 | 2.0000 | 0.063 |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ZINC COATED STEEL

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|-----|--------|--------|-----------|
| 24 | 3.9844 | 2.0000 | 0.062 |
| 25 | 4.0000 | 2.0000 | 0.063 |
| 26 | 3.9844 | 2.0000 | 0.062 |
| 27 | 3.9844 | 2.0000 | 0.061 |
| 28 | 4.0000 | 2.0000 | 0.064 |
| 29 | 3.9844 | 2.0078 | 0.063 |
| 30 | 3.9844 | 2.0000 | 0.062 |
| 31 | 4.0000 | 2.0000 | 0.063 |
| 32 | 3.9922 | 2.0000 | 0.062 |
| 33 | 3.9922 | 2.0000 | 0.063 |
| 34 | 3.9844 | 2.0000 | 0.062 |
| 35 | 3.9844 | 2.0000 | 0.062 |
| 36 | 3.9922 | 2.0000 | 0.063 |
| 37 | 3.9844 | 2.0000 | 0.063 |
| 38 | 3.9922 | 2.0000 | 0.064 |
| 39 | 3.9844 | 2.0000 | 0.062 |
| 40 | 4.0000 | 2.0000 | 0.064 |
| 41 | 3.9844 | 2.0000 | 0.062 |
| 42 | 3.9922 | 2.0078 | 0.064 |
| 43 | 3.9922 | 2.0078 | 0.064 |
| 44 | 3.9922 | 2.0000 | 0.062 |
| 45* | 3.9844 | 2.0000 | 0.062 |
| 46* | 3.9844 | 2.0078 | 0.062 |

* Control

TABLE Mh

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ZINC COATED STEEL

DATA WEIGHT-TIME

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ZINC COATED STEEL

DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS | | DAYS EXPOSED | NO. | WEIGHT IN GRAMS | | DAYS EXPOSED |
|-----|-----------------|---------|--------------|-----|-----------------|---------|--------------|
| | INITIAL | FINAL-1 | | | INITIAL | FINAL-2 | |
| 1 | 64.6522 | 64.6480 | 3 | 24 | 62.2693 | 62.2702 | 3 |
| 2 | 63.6856 | 63.6814 | | 25 | 63.7338 | 62.7350 | |
| 3 | 62.8789 | 62.8775 | | 26 | 62.8162 | 62.8173 | |
| 4 | 62.9337 | 62.9318 | 5 | 27 | 61.3120 | 61.3134 | 5 |
| 5 | 64.6191 | 64.6188 | | 28 | 64.5246 | 64.5264 | |
| 6 | 64.8870 | 64.8829 | | 29 | 63.4916 | 63.4930 | |
| 7 | 63.9650 | 63.9620 | 7 | 30 | 62.4382 | 62.4394 | 7 |
| 8 | 62.9731 | 62.9752 | | 31 | 63.3088 | 63.3111 | |
| 9 | 63.8191 | 63.8176 | | 32 | 62.3222 | 62.3228 | |
| 10 | 63.1110 | 63.1092 | 9 | 33 | 63.6808 | 63.6816 | 9 |
| 11 | 63.2232 | 63.2176 | | 34 | 62.4745 | 62.4755 | |
| 12 | 64.2832 | 64.2817 | | 35 | 62.4200 | 62.4204 | |
| 13 | 64.3478 | 64.3474 | 11 | 36 | 64.0525 | 64.0552 | 11 |
| 14 | 64.5207 | 64.5185 | | 37 | 63.1072 | 63.1098 | |
| 15 | 64.3532 | 64.3527 | | 38 | 64.7353 | 64.7378 | |
| 16 | 64.3045 | 64.3320 | 13 | 39 | 62.7154 | 62.7194 | 13 |
| 17 | 63.9346 | 63.9314 | | 40 | 64.6148 | 64.6171 | |
| 18 | 64.2391 | 64.2320 | | 41 | 62.5431 | 62.5450 | |
| 19 | 64.5269 | 64.5196 | 15 | 42 | 64.4030 | 64.5050 | 15 |
| 20 | 62.4555 | 62.4520 | | 43 | 64.5980 | 64.6008 | |
| 21 | 62.0425 | 62.0393 | | 44 | 62.0465 | 62.0494 | |

1 - Cleaned - Weight Decrease

2 - Not Cleaned - Weight Increase

TABLE 15

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ZINC COATED STEEL

DATA WEIGHT DECREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT DECREASE | EXPOSED |
|-----|------------------------------------|---------|
| 1 | 0.0042 | 3 |
| 2 | 0.0042 | |
| 3 | 0.0014 | |
| 4 | 0.0019 | 5 |
| 5 | 0.0030 | |
| 6 | 0.0011 | |
| 7 | 0.0030 | 7 |
| 8 | 0.0029 | |
| 9 | 0.0015 | |
| 10 | 0.0018 | 9 |
| 11 | 0.0056 | |
| 12 | 0.0015 | |
| 13 | 0.0004 | 11 |
| 14 | 0.0022 | |
| 15 | 0.0005 | |
| 16 | 0.0025 | 13 |
| 17 | 0.0032 | |
| 18 | 0.0071 | |
| 19 | 0.0073 | 15 |
| 20 | 0.0035 | |
| 21 | 0.0032 | |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ZINC COATED STEEL

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 24 | 0.0009 | 3 |
| 25 | 0.0012 | |
| 26 | 0.0011 | |
| 27 | 0.0014 | 5 |
| 28 | 0.0015 | |
| 29 | 0.0014 | |
| 30 | 0.0012 | 7 |
| 31 | 0.0023 | |
| 32 | 0.0006 | |
| 33 | 0.0008 | 9 |
| 34 | 0.0010 | |
| 35 | 0.0004 | |
| 36 | 0.0027 | 11 |
| 37 | 0.0026 | |
| 38 | 0.0025 | |
| 39 | 0.0040 | 13 |
| 40 | 0.0023 | |
| 41 | 0.0012 | |
| 42 | 0.0020 | 15 |
| 43 | 0.0020 | |
| 44 | 0.0029 | |

TABLE 46

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ALUMINUM 24S

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|------|--------|--------|-----------|
| 21 | 4.0000 | 2.0078 | 0.064 |
| 22 | 4.0000 | 2.0078 | 0.065 |
| 23 | 4.0000 | 2.0156 | 0.065 |
| 24 | 4.0000 | 2.0078 | 0.065 |
| 25 | 4.0000 | 2.0156 | 0.065 |
| 26 | 4.0000 | 2.0156 | 0.064 |
| 27 | 4.0000 | 2.0156 | 0.065 |
| 28 | 4.0000 | 2.0156 | 0.065 |
| 29 | 4.0156 | 2.0078 | 0.063 |
| 210 | 4.0000 | 2.0156 | 0.065 |
| 211 | 4.0000 | 2.0078 | 0.065 |
| 212 | 4.0000 | 2.0156 | 0.064 |
| 213 | 4.0000 | 2.0156 | 0.065 |
| 214 | 4.0000 | 2.0156 | 0.065 |
| 215 | 4.0078 | 2.0156 | 0.065 |
| 216 | 4.0000 | 2.0156 | 0.065 |
| 217 | 4.0000 | 2.0078 | 0.065 |
| 218 | 4.0000 | 2.0156 | 0.065 |
| 219 | 4.0078 | 2.0234 | 0.064 |
| 220 | 4.0000 | 2.0156 | 0.065 |
| 221* | 3.9922 | 2.0156 | 0.064 |
| 222* | 4.0000 | 2.0156 | 0.065 |
| 223 | 4.0078 | 2.0234 | 0.064 |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ALUMINUM 24S

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|------|--------|--------|-----------|
| 224 | 4.0000 | 2.0156 | 0.065 |
| 225 | 4.0000 | 2.0156 | 0.064 |
| 226 | 4.0000 | 2.0156 | 0.065 |
| 227 | 4.0000 | 2.0156 | 0.065 |
| 228 | 4.0156 | 2.0156 | 0.064 |
| 229 | 4.0000 | 2.0156 | 0.065 |
| 230 | 4.0078 | 2.0156 | 0.065 |
| 231 | 4.0078 | 2.0156 | 0.064 |
| 232 | 4.0000 | 2.0156 | 0.065 |
| 233 | 4.0000 | 2.0078 | 0.065 |
| 234 | 3.9844 | 2.0078 | 0.065 |
| 235 | 4.0000 | 2.0156 | 0.065 |
| 236 | 4.0000 | 2.0156 | 0.065 |
| 237 | 4.0000 | 2.0156 | 0.064 |
| 238 | 4.0078 | 2.0078 | 0.064 |
| 239 | 4.0078 | 2.0156 | 0.064 |
| 240 | 4.0078 | 2.0156 | 0.064 |
| 241 | 3.9922 | 2.0078 | 0.065 |
| 242 | 4.0000 | 2.0156 | 0.065 |
| 243 | 4.0000 | 2.0156 | 0.065 |
| 244 | 4.0000 | 2.0156 | 0.065 |
| 245* | 3.9766 | 2.0078 | 0.064 |
| 246* | 4.0000 | 2.0156 | 0.065 |

* Control

TABLE 47

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2
 PHASE I
 TEST 1
 SPECIMEN ALUMINUM 24S
 DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS INITIAL | FINAL | DAYS EXPOSED |
|-----|----------------------------|---------|-----------------|
| 21 | 23.2130 | 23.2154 | 3 |
| 22 | 23.3736 | 23.3767 | |
| 23 | 23.4069 | 23.4114 | |
| 24 | 23.4334 | 23.4434 | 5 |
| 25 | 23.4919 | 23.4960 | |
| 26 | 23.3068 | 23.3108 | |
| 27 | 23.5432 | 23.5503 | 7 |
| 28 | 23.6000 | 23.6081 | |
| 29 | 23.0065 | 23.0156 | |
| 210 | 23.4760 | 23.4812 | 9 |
| 211 | 23.2703 | 23.2754 | |
| 212 | 23.3139 | 23.3182 | |
| 213 | 23.3931 | 23.4021 | 11 |
| 214 | 23.5490 | 23.5570 | |
| 215 | 23.3006 | 23.3094 | |
| 216 | 23.6206 | 23.6300 | 13 |
| 217 | 23.4025 | 23.4022 | |
| 218 | 23.5671 | 23.5782 | |
| 219 | 23.2060 | 23.2004 | 15 |
| 220 | 23.4517 | 23.4554 | |
| 223 | 23.1505 | 23.1594 | |

WADC TR 53-107 Pt 2
 PHASE I
 TEST 2
 SPECIMEN ALUMINUM 24S
 DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS INITIAL | FINAL | DAYS EXPOSED |
|-----|----------------------------|---------|-----------------|
| 224 | 23.3643 | 23.3741 | 3 |
| 225 | 23.1218 | 23.1338 | |
| 226 | 22.0502 | 22.0720 | |
| 227 | 23.6142 | 23.6266 | 5 |
| 228 | 23.3006 | 23.3176 | |
| 229 | 23.5620 | 23.5704 | |
| 230 | 23.4448 | 23.4496 | 7 |
| 231 | 23.1280 | 23.1320 | |
| 232 | 23.3385 | 23.3410 | |
| 233 | 23.2990 | 23.3133 | 9 |
| 234 | 22.6266 | 22.6393 | |
| 235 | 23.4092 | 23.4262 | |
| 236 | 23.2852 | 23.2884 | 11 |
| 237 | 23.2434 | 23.2512 | |
| 238 | 23.2642 | 23.2670 | |
| 239 | 23.0951 | 23.0980 | 13 |
| 240 | 23.2177 | 23.2206 | |
| 241 | 23.3432 | 23.3450 | |
| 242 | 23.5350 | 23.5373 | 15 |
| 243 | 23.4774 | 23.4739 | |
| 244 | 23.4302 | 23.4322 | |

TABLE 40

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ALUMINUM 24S

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 21 | 0.0024 | 3 |
| 22 | 0.0031 | |
| 23 | 0.0025 | |
| 24 | 0.0100 | 5 |
| 25 | 0.0041 | |
| 26 | 0.0040 | |
| 27 | 0.0071 | 7 |
| 28 | 0.0031 | |
| 29 | 0.0091 | |
| 210 | 0.0143 | 9 |
| 211 | 0.0046 | |
| 212 | 0.0043 | |
| 213 | 0.0090 | 11 |
| 214 | 0.0080 | |
| 215 | 0.0098 | |
| 216 | 0.0102 | 13 |
| 217 | 0.0097 | |
| 218 | 0.0111 | |
| 219 | 0.0036 | 15 |
| 220 | 0.0037 | |
| 223 | 0.0009 | |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ALUMINUM 24S

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 224 | 0.0098 | 3 |
| 225 | 0.0120 | |
| 226 | 0.0118 | |
| 227 | 0.0124 | 5 |
| 228 | 0.0090 | |
| 229 | 0.0034 | |
| 230 | 0.0046 | 7 |
| 231 | 0.0040 | |
| 232 | 0.0033 | |
| 233 | 0.0143 | 9 |
| 234 | 0.0127 | |
| 235 | 0.0170 | |
| 236 | 0.0032 | 11 |
| 237 | 0.0028 | |
| 238 | 0.0026 | |
| 239 | 0.0029 | 13 |
| 240 | 0.0029 | |
| 241 | 0.0026 | |
| 242 | 0.0023 | 15 |
| 243 | 0.0015 | |
| 244 | 0.0020 | |

TABLE 49

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE 1
 TEST 1 & 2
 SPECIMEN ALUMINUM 24S
 DATA WEIGHT INCREASE CALCULATIONS-TIME

| DAYS EXPOSED | WT. IN GRAMS AV. WT. INC. (a) | GRAMS/DAY AV. WT. INC./DAY (b) |
|-----------------|----------------------------------|-----------------------------------|
| 1 | | |
| 3 | 0.0069 | 0.0023 |
| 5 | 0.0080 | 0.0016 |
| 7 | 0.0061 | 0.00087 |
| 9 | 0.0112 | 0.0012 |
| 11 | 0.0059 | 0.00054 |
| 13 | 0.0066 | 0.00051 |
| 15 | 0.0023 | 0.00015 |

(a) Average weight increase of tests 1 & 2

(b) Average rate = (a)/days exposed

TABLE 50

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ALUMINUM 528

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|------|--------|--------|-----------|
| 51 | 4.0000 | 2.0156 | 0.065 |
| 52 | 4.0078 | 2.0156 | 0.065 |
| 53 | 3.9610 | 2.0078 | 0.065 |
| 54 | 3.9610 | 2.0156 | 0.065 |
| 55 | 3.9610 | 2.0156 | 0.064 |
| 56 | 4.0000 | 2.0156 | 0.065 |
| 57 | 4.0000 | 2.0078 | 0.065 |
| 58 | 4.0234 | 2.0156 | 0.064 |
| 59 | 4.0312 | 2.0156 | 0.064 |
| 510 | 3.9922 | 2.0156 | 0.065 |
| 511 | 4.0000 | 2.0000 | 0.064 |
| 512 | 3.9922 | 2.0078 | 0.066 |
| 513 | 4.0000 | 2.0156 | 0.064 |
| 514 | 4.0000 | 2.0078 | 0.065 |
| 515 | 3.9844 | 2.0312 | 0.064 |
| 516 | 3.9844 | 2.0156 | 0.065 |
| 517 | 3.9610 | 2.0078 | 0.064 |
| 518 | 4.0000 | 2.0078 | 0.064 |
| 519 | 3.9844 | 2.0078 | 0.065 |
| 520 | 3.9608 | 2.0078 | 0.065 |
| 521 | 4.0078 | 2.0078 | 0.065 |
| 522* | 4.0000 | 2.0078 | 0.065 |
| 523* | 4.0000 | 2.0156 | 0.065 |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ALUMINUM 528

DATA DIMENSIONS IN INCHES

| NO. | LENGTH | WIDTH | THICKNESS |
|------|--------|--------|-----------|
| 524 | 4.0078 | 2.0078 | 0.065 |
| 525 | 3.9922 | 2.0078 | 0.065 |
| 526 | 3.9922 | 2.0156 | 0.065 |
| 527 | 4.0000 | 2.0156 | 0.065 |
| 528 | 3.9766 | 2.0078 | 0.065 |
| 529 | 3.9844 | 2.0156 | 0.065 |
| 530 | 3.9844 | 2.0156 | 0.065 |
| 531 | 4.0234 | 2.0078 | 0.064 |
| 532 | 3.9766 | 2.0156 | 0.065 |
| 533 | 4.0078 | 2.0156 | 0.065 |
| 534 | 4.0078 | 2.0000 | 0.065 |
| 535 | 4.0078 | 2.0078 | 0.065 |
| 536 | 3.9766 | 2.0078 | 0.065 |
| 537 | 4.0000 | 2.0078 | 0.065 |
| 538 | 4.0000 | 2.0156 | 0.065 |
| 539 | 4.0000 | 2.0156 | 0.064 |
| 540 | 4.0000 | 2.0156 | 0.065 |
| 541 | 4.0078 | 2.0078 | 0.065 |
| 542 | 3.9922 | 2.0156 | 0.065 |
| 543 | 4.0000 | 2.0078 | 0.064 |
| 544 | 4.0000 | 2.0156 | 0.065 |
| 545* | 3.9844 | 2.0156 | 0.065 |
| 546* | 4.0000 | 2.0078 | 0.065 |

* Control

TABLE 51

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2
 PHASE I
 TEST 1
 SPECIMEN ALUMINUM 528
 DATA WEIGHT-TIME

WADC TR 53-107 Pt 2
 PHASE I
 TEST 2
 SPECIMEN ALUMINUM 528
 DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS INITIAL | FINAL | DAYS EXPOSED | NO. | WEIGHT IN GRAMS INITIAL | FINAL | DAYS EXPOSED |
|-----|----------------------------|---------|-----------------|-----|----------------------------|---------|-----------------|
| 51 | 22.7471 | 22.7575 | 3 | 524 | 22.7316 | 22.7944 | 3 |
| 52 | 22.8235 | 22.8290 | | 525 | 22.5051 | 22.5907 | |
| 53 | 22.3415 | 22.3480 | | 526 | 22.5632 | 22.5734 | |
| 54 | 22.4270 | 22.5100 | 5 | 527 | 22.8950 | 22.9006 | 5 |
| 55 | 22.1948 | 22.2100 | | 528 | 22.4013 | 22.4049 | |
| 56 | 22.7067 | 22.7100 | | 529 | 22.6383 | 22.6434 | |
| 57 | 22.4738 | 22.4900 | 7 | 530 | 22.6242 | 22.6461 | 7 |
| 58 | 22.5236 | 22.5463 | | 531 | 22.3790 | 22.3824 | |
| 59 | 22.6024 | 22.6202 | | 532 | 22.5910 | 22.5936 | |
| 510 | 22.8622 | 22.8658 | 9 | 533 | 22.7368 | 22.7522 | 9 |
| 511 | 22.3032 | 22.3072 | | 534 | 22.5925 | 22.6066 | |
| 512 | 22.7263 | 22.7426 | | 535 | 22.5452 | 22.5576 | |
| 513 | 22.2698 | 22.2800 | 11 | 536 | 22.5025 | 22.5062 | 11 |
| 514 | 22.9042 | 22.9116 | | 537 | 22.7201 | 22.7226 | |
| 515 | 22.3770 | 22.3842 | | 538 | 22.5364 | 22.5900 | |
| 516 | 22.6285 | 22.6364 | 13 | 539 | 22.3375 | 22.3393 | 13 |
| 517 | 21.9434 | 21.9612 | | 540 | 22.5160 | 22.5182 | |
| 518 | 22.2108 | 22.2337 | | 541 | 22.5750 | 22.5774 | |
| 519 | 22.6352 | 22.6902 | 15 | 542 | 22.7760 | 22.7760 | 15 |
| 520 | 22.3908 | 22.4006 | | 543 | 22.2749 | 22.2750 | |
| 521 | 22.5084 | 22.5150 | | 544 | 22.5407 | 22.5418 | |

TABLE 52

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ALUMINUM 52S

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 51 | 0.0104 | 3 |
| 52 | 0.0055 | |
| 53 | 0.0065 | |
| 54 | 0.0130 | 5 |
| 55 | 0.0152 | |
| 56 | 0.0113 | |
| 57 | 0.0162 | 7 |
| 58 | 0.0227 | |
| 59 | 0.0178 | |
| 510 | 0.0036 | 9 |
| 511 | 0.0060 | |
| 512 | 0.0163 | |
| 513 | 0.0102 | 11 |
| 514 | 0.0074 | |
| 515 | 0.0072 | |
| 516 | 0.0079 | 13 |
| 517 | 0.0178 | |
| 518 | 0.0229 | |
| 519 | 0.0050 | 15 |
| 520 | 0.0098 | |
| 521 | 0.0066 | |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ALUMINUM 52S

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 524 | 0.0128 | 3 |
| 525 | 0.0130 | |
| 526 | 0.0102 | |
| 527 | 0.0056 | 5 |
| 528 | 0.0036 | |
| 529 | 0.0051 | |
| 530 | 0.0019 | 7 |
| 531 | 0.0026 | |
| 532 | 0.0026 | |
| 533 | 0.0154 | 9 |
| 534 | 0.0141 | |
| 535 | 0.0124 | |
| 536 | 0.0037 | |
| 537 | 0.0025 | |
| 538 | 0.0044 | |
| 539 | 0.0018 | 13 |
| 540 | 0.0022 | |
| 541 | 0.0016 | |
| 542 | 0.0000 | 15 |
| 543 | 0.0009 | |
| 544 | 0.0011 | |

TABLE 53

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 1 & 2
 SPECIMEN ALUMINUM 528
 DATA: WEIGHT INCREASE CALCULATIONS-TIME

| DAYS EXPOSED | WT. IN GRAMS AV. WT. INC. (a) | GRAMS/DAY AV. WT. INC./DAY (b) |
|-----------------|----------------------------------|-----------------------------------|
| 1 | | |
| 3 | 0.0097 | 0.0032 |
| 5 | 0.0090 | 0.0018 |
| 7 | 0.0106 | 0.0015 |
| 9 | 0.0113 | 0.0013 |
| 11 | 0.0059 | 0.0005 |
| 13 | 0.0090 | 0.0006 |
| 15 | 0.0039 | 0.0002 |

(a) Average weight increase of tests 1 & 2

(b) Average rate = (a)/days exposed

TABLE 54

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ALUMINUM 52S BOLTED

DATA WEIGHT-TIME

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ALUMINUM 52S BOLTED

DATA WEIGHT-TIME

| NO. | WEIGHT IN GRAMS | | DAYS EXPOSED | NO. | WEIGHT IN GRAMS | | DAYS EXPOSED |
|-----|-----------------|---------|--------------|-----|-----------------|---------|--------------|
| | INITIAL | FINAL | | | INITIAL | FINAL | |
| 1" | 63.3310 | . | 0 | 29" | 62.6725 | | 0 |
| 2" | 62.7500 | | | 30" | 63.0950 | | |
| 3" | 62.5906 | | | 31" | 64.2040 | | |
| 4" | 63.2770 | | | 32" | 62.9863 | | |
| 5" | 62.7242 | | | 33" | 62.9324 | | |
| 8 | 62.8283 | 62.8420 | 3 | 34 | 62.7736 | 62.8050 | 3 |
| 9 | 62.6310 | 62.6503 | | 35 | 63.4022 | 63.4320 | |
| 13 | 62.8782 | 62.9004 | | 36 | 63.5354 | 63.5720 | |
| 11 | 62.0609 | 62.0913 | 5 | 37 | 63.4560 | 63.4800 | 5 |
| 12 | 62.1790 | 62.2142 | | 38 | 62.0719 | 62.1072 | |
| 13 | 62.0420 | 62.8710 | | 39 | 62.4154 | 62.4520 | |
| 14 | 62.9253 | 62.9642 | 7 | 40 | 63.3373 | 63.3702 | 7 |
| 15 | 62.9600 | 62.9891 | | 41 | 63.1654 | 63.1994 | |
| 16 | 63.3920 | 63.4213 | | 42 | 62.2352 | 62.2802 | |
| 17 | 62.5600 | 62.5373 | 9 | 43 | 62.9444 | 62.9807 | 9 |
| 18 | 62.9710 | 62.9954 | | 44 | 62.7300 | 62.7671 | |
| 19 | 62.3470 | 62.3744 | | 45 | 62.7129 | 62.0526 | |
| 20 | 62.7204 | 62.7735 | 11 | 46 | 63.1723 | 63.2166 | 11 |
| 21 | 63.4219 | 63.4502 | | 47 | 62.3099 | 62.3542 | |
| 22 | 62.6942 | 62.7437 | | 48 | 62.8021 | 62.8446 | |
| 23 | 63.0314 | 63.0926 | 13 | 49 | 62.5564 | 62.5964 | 13 |
| 24 | 62.0633 | 62.9083 | | 50 | 61.5464 | 61.5966 | |
| 25 | 61.8036 | 61.3577 | | 51 | 63.3141 | 63.3520 | |
| 26 | 62.3330 | 62.3720 | 15 | 52 | 63.1434 | 63.1852 | 15 |
| 27 | 62.6173 | 62.6513 | | 53 | 62.6755 | 62.7169 | |
| 28 | 62.0512 | 62.6515 | | 54 | 63.5166 | 63.5664 | |

" Enclosed

WADC TR 53-107 Pt 2

TABLE 55

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TEST 1

SPECIMEN ALUMINUM 52S BOLTED

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 8 | 0.0137 | 3 |
| 9 | 0.0193 | |
| 10 | 0.0222 | |
| 11 | 0.0304 | 5 |
| 12 | 0.0352 | |
| 13 | 0.0298 | |
| 14 | 0.0339 | 7 |
| 15 | 0.0291 | |
| 16 | 0.0223 | |
| 17 | 0.0270 | 9 |
| 18 | 0.0236 | |
| 19 | 0.0274 | |
| 20 | 0.0451 | 11 |
| 21 | 0.0233 | |
| 22 | 0.0495 | |
| 23 | 0.0612 | 13 |
| 24 | 0.0450 | |
| 25 | 0.0541 | |
| 26 | 0.0390 | 15 |
| 27 | 0.0340 | |
| 28 | 0.0603 | |

WADC TR 53-107 Pt 2

PHASE I

TEST 2

SPECIMEN ALUMINUM 52S BOLTED

DATA WEIGHT INCREASE-TIME

| NO. | WEIGHT IN GRAMS WEIGHT INCREASE | DAYS EXPOSED |
|-----|------------------------------------|-----------------|
| 34 | 0.0314 | 3 |
| 35 | 0.0306 | |
| 36 | 0.0366 | |
| 37 | 0.0338 | 5 |
| 38 | 0.0353 | |
| 39 | 0.0366 | |
| 40 | 0.0329 | 7 |
| 41 | 0.0340 | |
| 42 | 0.0450 | |
| 43 | 0.0443 | 9 |
| 44 | 0.0371 | |
| 45 | 0.0327 | |
| 46 | 0.0443 | 11 |
| 47 | 0.0443 | |
| 48 | 0.0425 | |
| 49 | 0.0400 | 13 |
| 50 | 0.0502 | |
| 51 | 0.0372 | |
| 52 | 0.0416 | 15 |
| 53 | 0.0414 | |
| 54 | 0.0498 | |

TABLE 56

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TEST 1 & 2
 SPECIMEN ALUMINUM 52S BOLTED
 DATA WEIGHT INCREASE CALCULATIONS-TIME

| DAYS EXPOSED | WT. IN GRAMS AV. WT. INC. (a) | GRAMS/DAY AV. WT. INC./DAY (b) |
|-----------------|----------------------------------|-----------------------------------|
| 1 | | |
| 3 | 0.0256 | 0.0085 |
| 5 | 0.0335 | 0.0067 |
| 7 | 0.0349 | 0.0050 |
| 9 | 0.0333 | 0.0037 |
| 11 | 0.0423 | 0.0038 |
| 13 | 0.0431 | 0.0037 |
| 15 | 0.0414 | 0.0028 |

(a) Average weight increase of tests 1 & 2

(b) Average rate = (a)/days exposed

TABLE 57

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TESTS 1 & 2
 SPECIMEN CONTROLS
 DATA MAXIMUM WEIGHT INCREASE

WEIGHT IN GRAMS

| | |
|----------------|--------|
| Terminal Board | 0.0282 |
| Phenolite | 0.0660 |
| Lucite | 0.0597 |
| Steel | 0.0015 |
| Steel Zinc | 0.0014 |
| AL243 | 0.0019 |
| AL 52S | 0.0012 |
| AL52S BOLTED | 0.0070 |

TABLE 58

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN PLASTICS

DATA SUMMARY OF MAXIMUM VALUES OF PER CENT WEIGHT INCREASE
AND LOG RESISTANCE

| SPECIMEN | PER CENT WEIGHT INCREASE | | GRAPH |
|-------------------------|--------------------------|---------|--------|
| | 10 Days | 15 Days | |
| Terminal Board Exposed | 2.80 | 3.20 | Fig. 2 |
| Terminal Board Enclosed | 1.05 | 1.25 | Fig. 3 |
| Phenolite Exposed | 3.85 | 4.35 | Fig. 4 |
| Phenolite Enclosed | 1.85 | 2.10 | Fig. 5 |
| Lucite Exposed | 1.25 | 1.25 | Fig. 6 |

| SPECIMEN | LOG OF THE RESISTANCE | | | GRAPH |
|-------------------------|-----------------------|---------|---------|---------|
| | 0 Days | 10 Days | 15 Days | |
| Terminal Board Exposed | 10.65 | 6.60 | 6.30 | Fig. 7 |
| Terminal Board Enclosed | 10.62 | 8.55 | 8.20 | Fig. 8 |
| Phenolite Exposed | 10.30 | 8.75 | 8.25 | Fig. 9 |
| Phenolite Enclosed | 11.20 | 9.30 | 9.00 | Fig. 10 |

TABLE 59

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TESTS 1 & 2
 SPECIMEN METALS
 DATA SUMMARY - AVERAGE RATE AND AVERAGE WEIGHT CHANGE

| SPECIMEN | DAYS EXPOSED | AVERAGE RATE (a) | AVERAGE WEIGHT CHANGE (b) | GRAPH |
|---------------|--------------|------------------|---------------------------|---------|
| Steel | 0 | 0.019 | 0 | Fig. 11 |
| | 5 | 0.011 | 0.055 | |
| | 10 | 0.0056 | 0.056 | |
| | 15 | 0.0038 | 0.057 | |
| Al 24S | 0 | 0.0034 | 0 | Fig. 12 |
| | 5 | 0.0016 | 0.0080 | |
| | 10 | 0.0008 | 0.0080 | |
| | 15 | 0.00018 | 0.0027 | |
| Al 52S | 0 | 0.0048 | 0 | Fig. 13 |
| | 5 | 0.0021 | 0.0105 | |
| | 10 | 0.00084 | 0.0084 | |
| | 15 | 0.00035 | 0.0043 | |
| Al 52S Bolted | 0 | 0.013 | 0 | Fig. 14 |
| | 5 | 0.0064 | 0.032 | |
| | 10 | 0.0038 | 0.038 | |
| | 15 | 0.0031 | 0.047 | |

Average Rate (a) Steel - grams decrease/day

Others - grams increase/day

Average Weight Decrease (b) = Average Rate (a) x Days Exposed

Steel - grams decrease

Others - grams increase

TABLE 60

CORRELATION OF TEMPERATURE-HUMIDITY TESTS
 WADC TR 53-107 Pt 2
 PHASE I
 TESTS 1 & 2
 SPECIMEN METALS
 DATA MEAN VALUES OF AVERAGE RATES OF CORROSION

| SPECIMEN | MEAN VALUE OF AVERAGE RATE | GRAPH |
|---------------|----------------------------|---------|
| Steel | 0.0077 | Fig. 11 |
| Al 24S | 0.00103 | Fig. 12 |
| Al 52S | 0.00132 | Fig. 13 |
| Al 52S Bolted | 0.0052 | Fig. 14 |

Average Rate Steel - grams decrease/day
 Others - grams increase/day

NO. 144 SEMCO GRAIN PAPER
4 X 4 PER MCM
GUARANTEED "ALL BAG PAPER"

SPALDING-JACOB COMPANY
ROSDEN, N. MASS.
MADE IN U. S. A.

WADC TR 53-107 Pt. 2

93

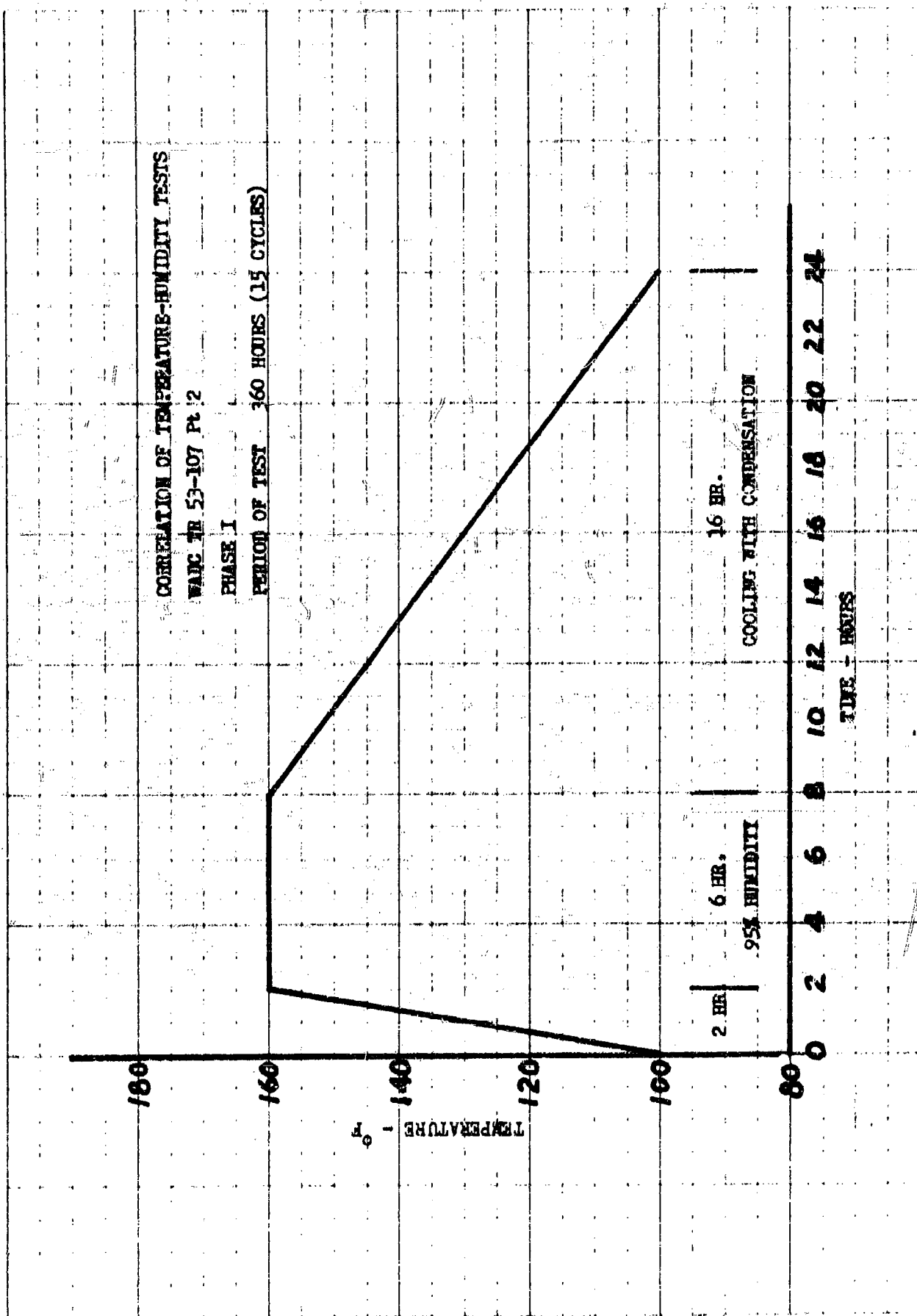


Figure 1

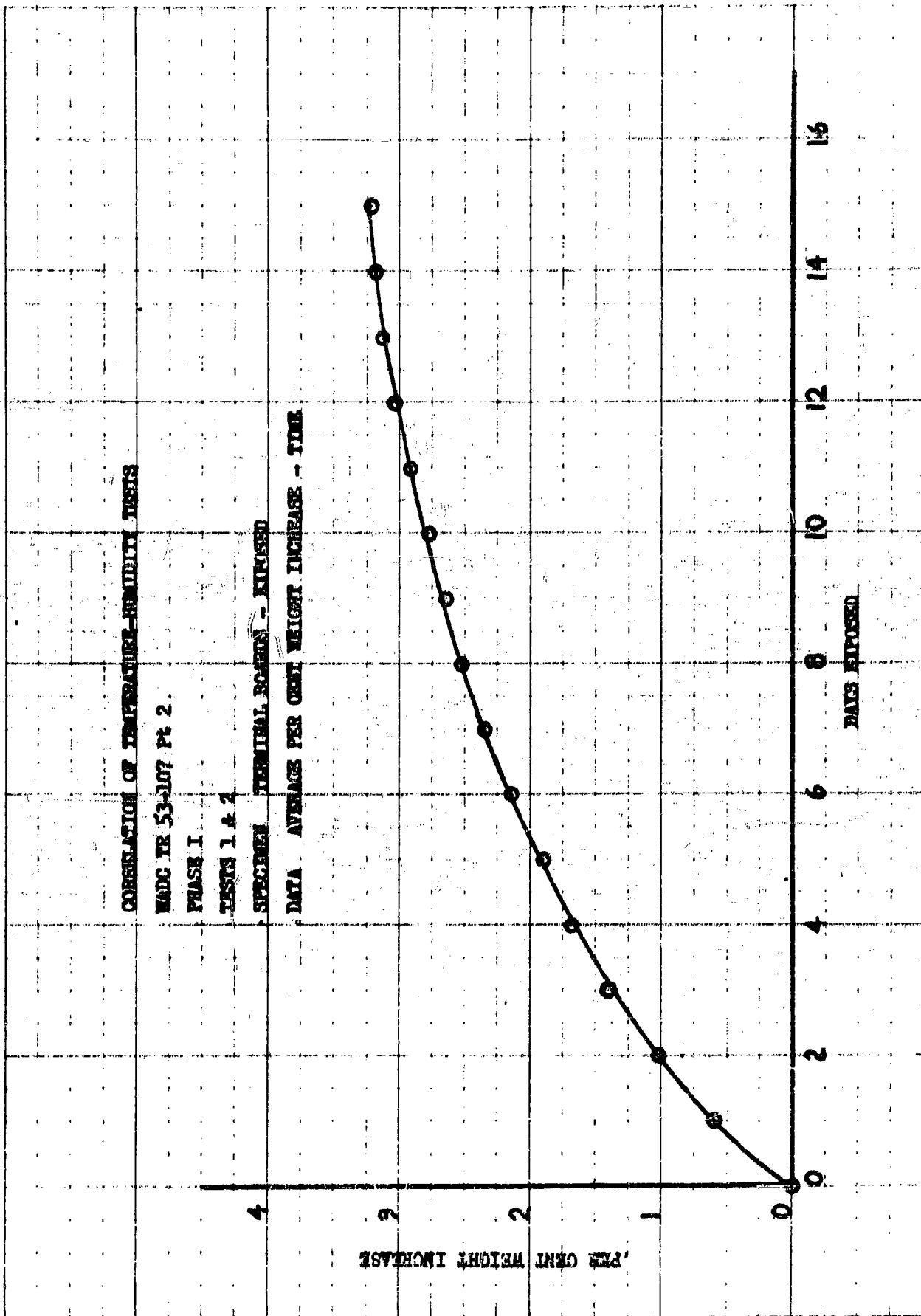


Figure 2

WADC TR 53-107 Pt 2

95

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN TERMINAL BOARDS - ENCLOSED

DATA AVERAGE PER CENT WEIGHT INCREASE - TIME

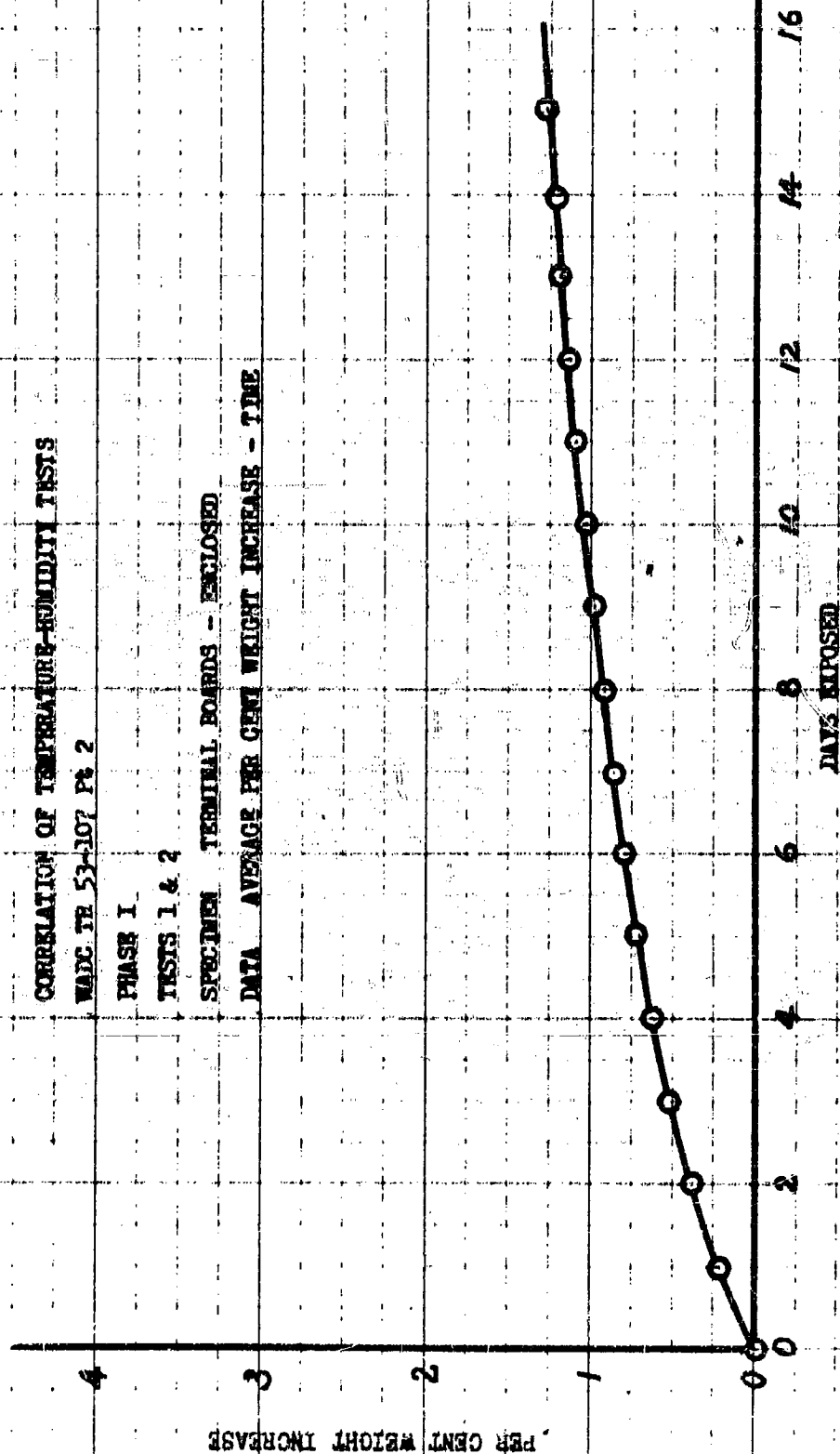


Figure 3

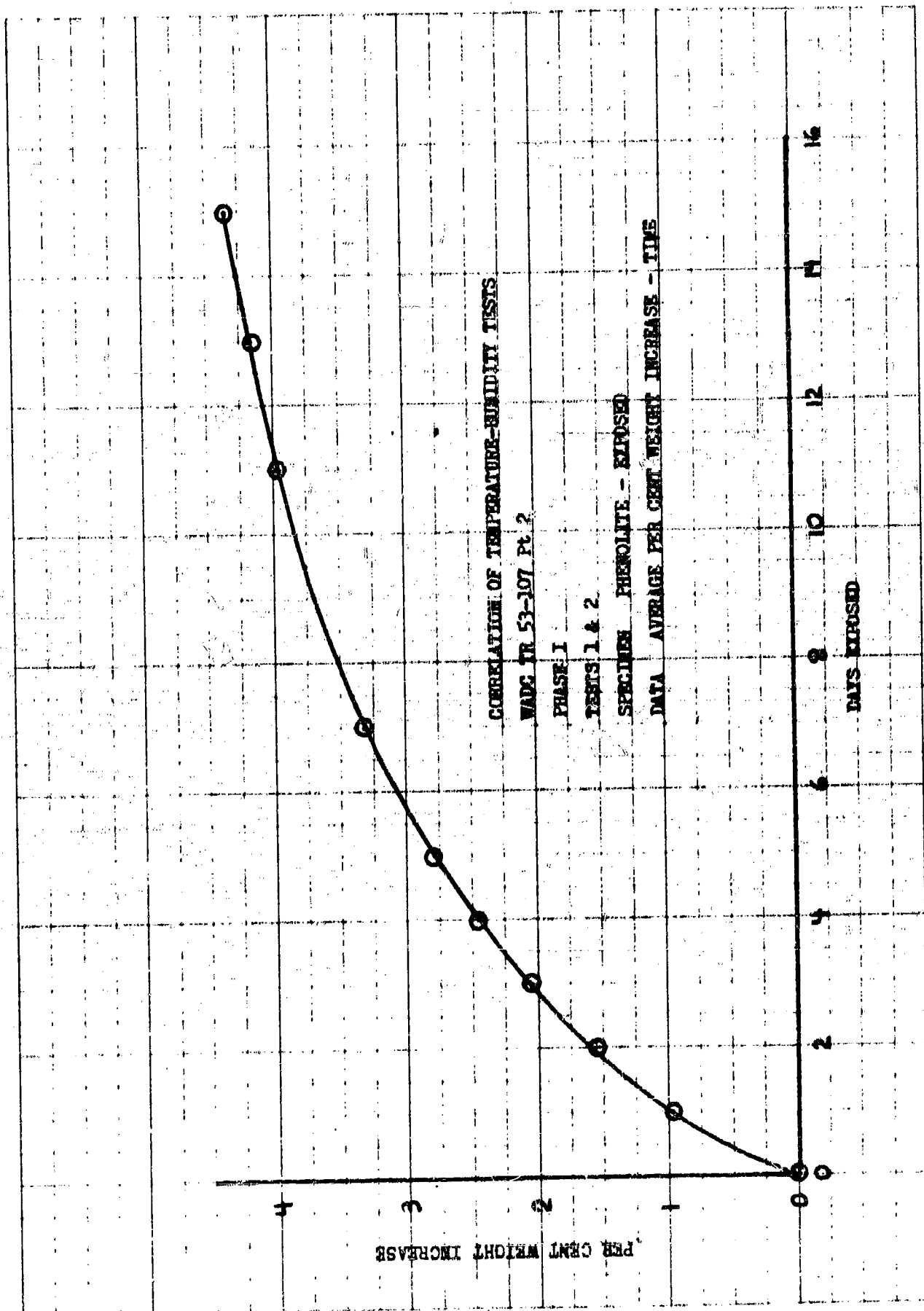


Figure 4

NO. 1-48 SMCOD GRAIN PAPER
4 X 4 PER UNCH
GUARANTEED "ALL BAS PAPER"

SPARKING-MOORE COMPANY
BOSTON 12, MASS.
MADE IN U. S. A.

WADC TR 53-107 Pt 2

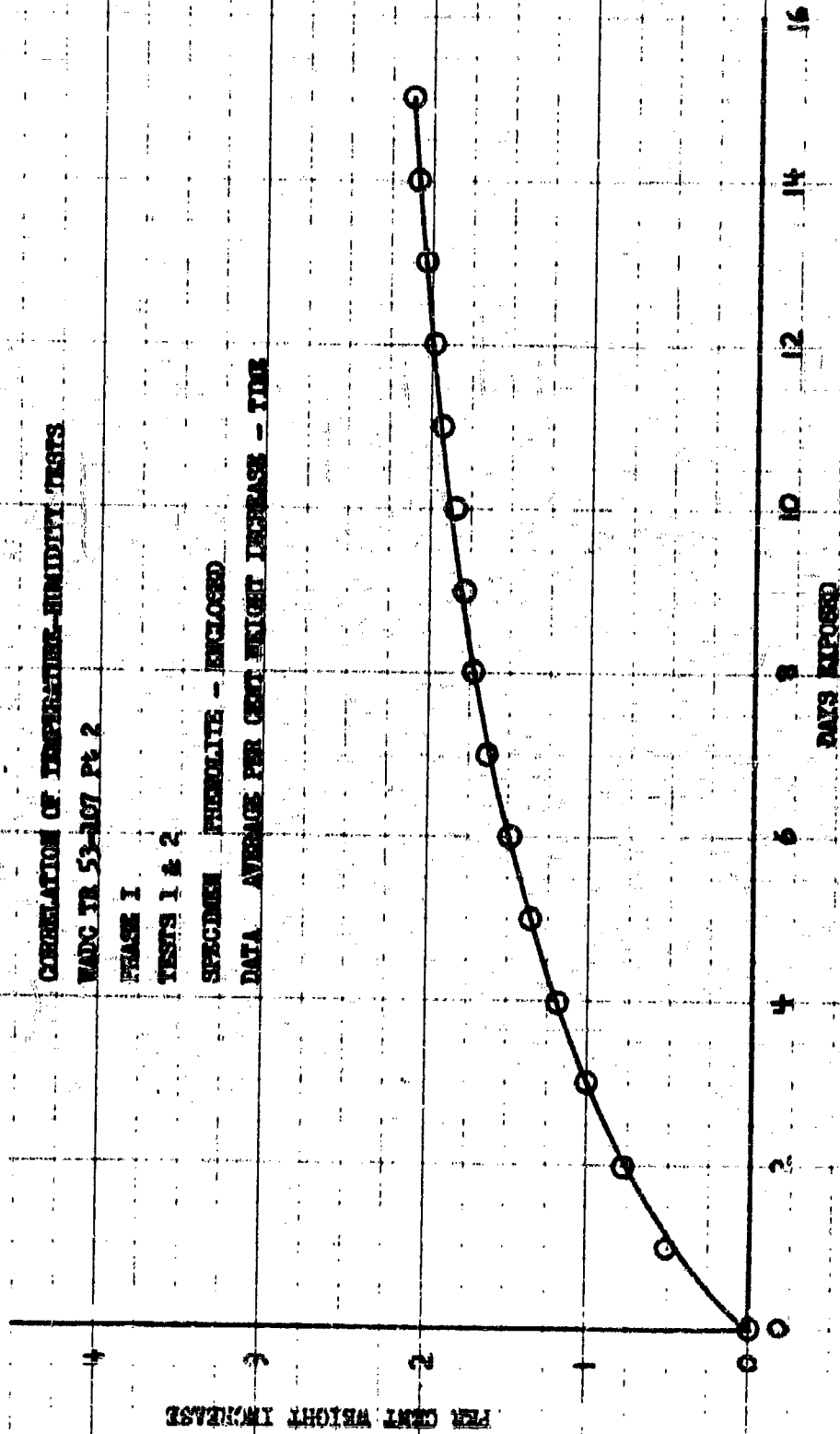


Figure 5

WADC TR 53-107 Pt. 2

98

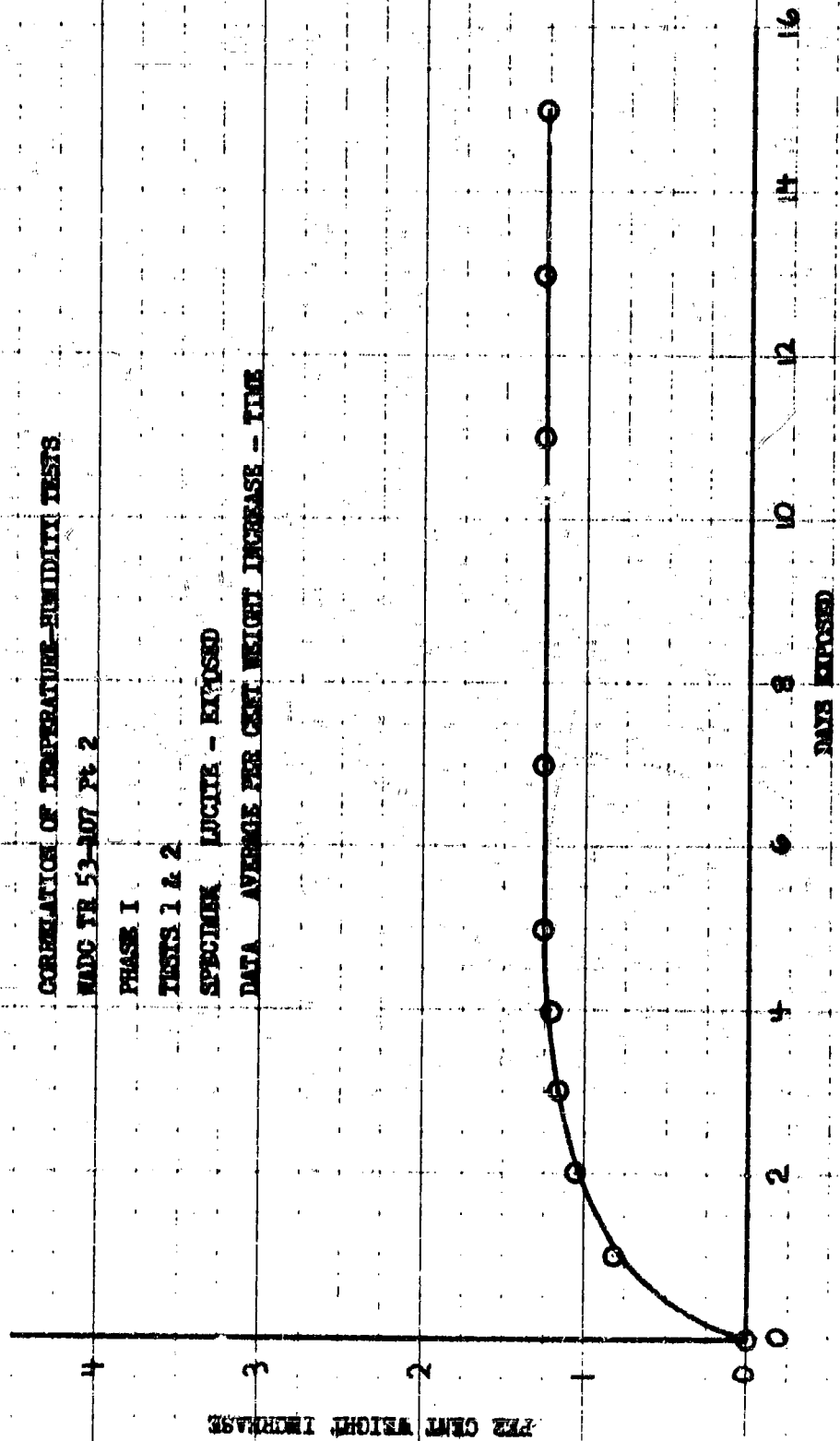


Figure 6

WADC PR 53-107 Pt 2

99

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC PR 53-107 Pt 2

PHASE I

TEST 1 & 2

SPECIMEN TERMINAL READINGS - EXPOSED

DATA LOG OF THE RESISTANCE - TIME

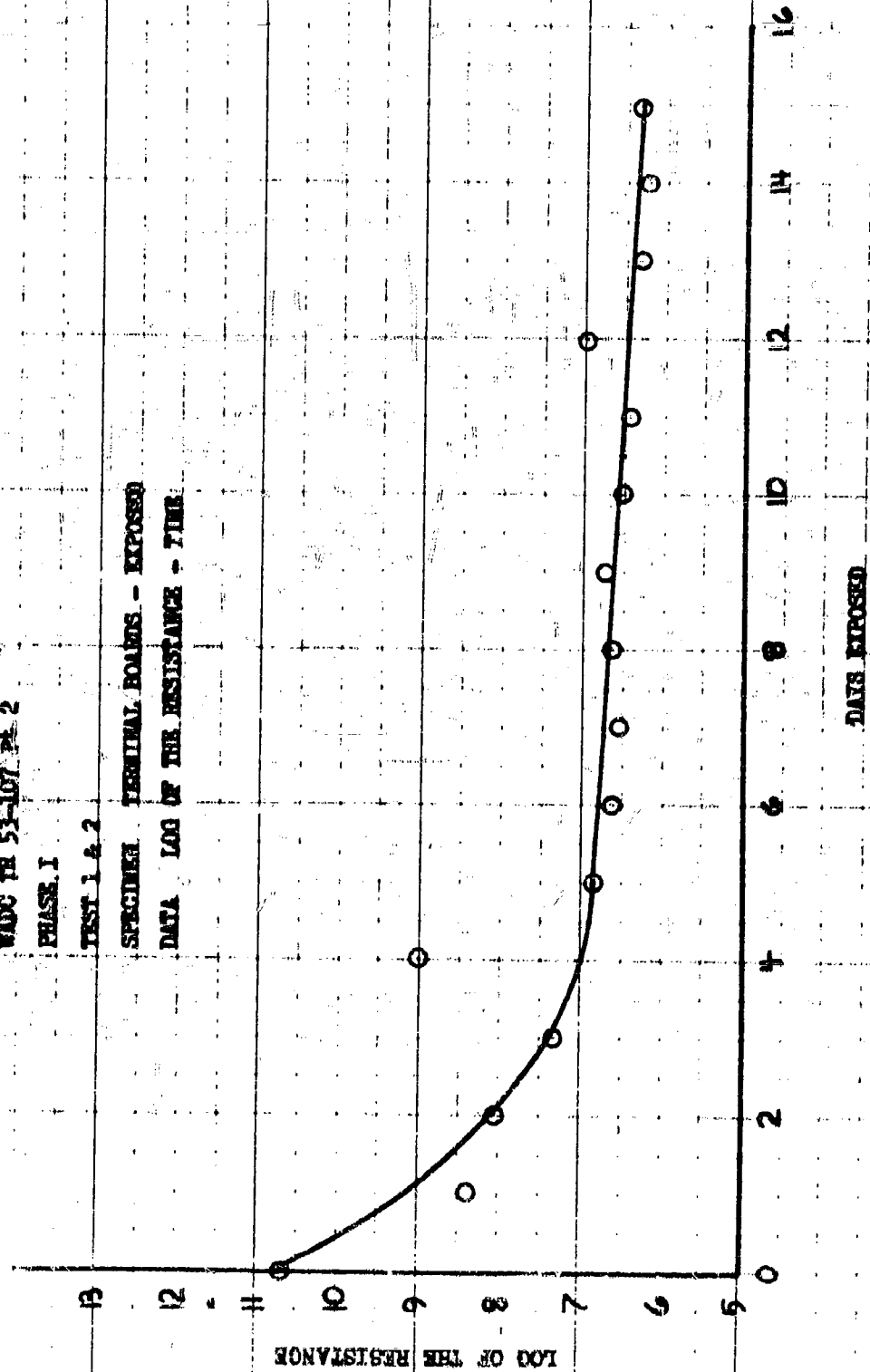


Figure 7

WADC TR 53-107 Pt 2

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN TERMINAL BOARDS - ENCLOSED

DATA LOG OF THE RESISTANCE - TIME

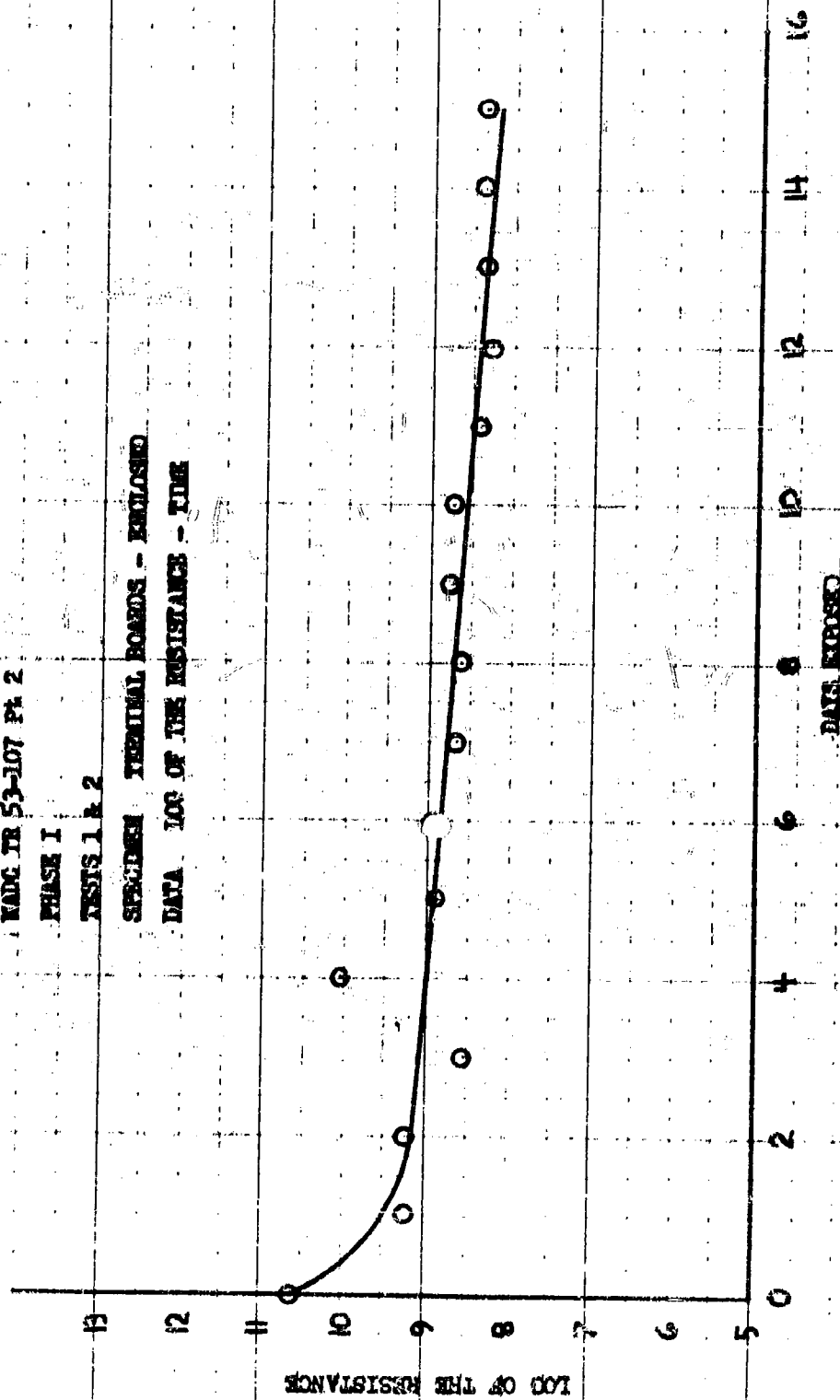


Figure 6

SPALDING-MOSS COMPANY
BOSTON 20, MASS.
MADE IN U. S. A.

NO 7-44 SEMCO GRAPH PAPER
4 X 4 PER INCH
GUARANTEED "ALL BAS PAPER"

WADC TR 53-107 Pt 2

101

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADC TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN: RHENOLITE - EXPOSED

DATA: LOG OF THE RESISTANCE - TIME

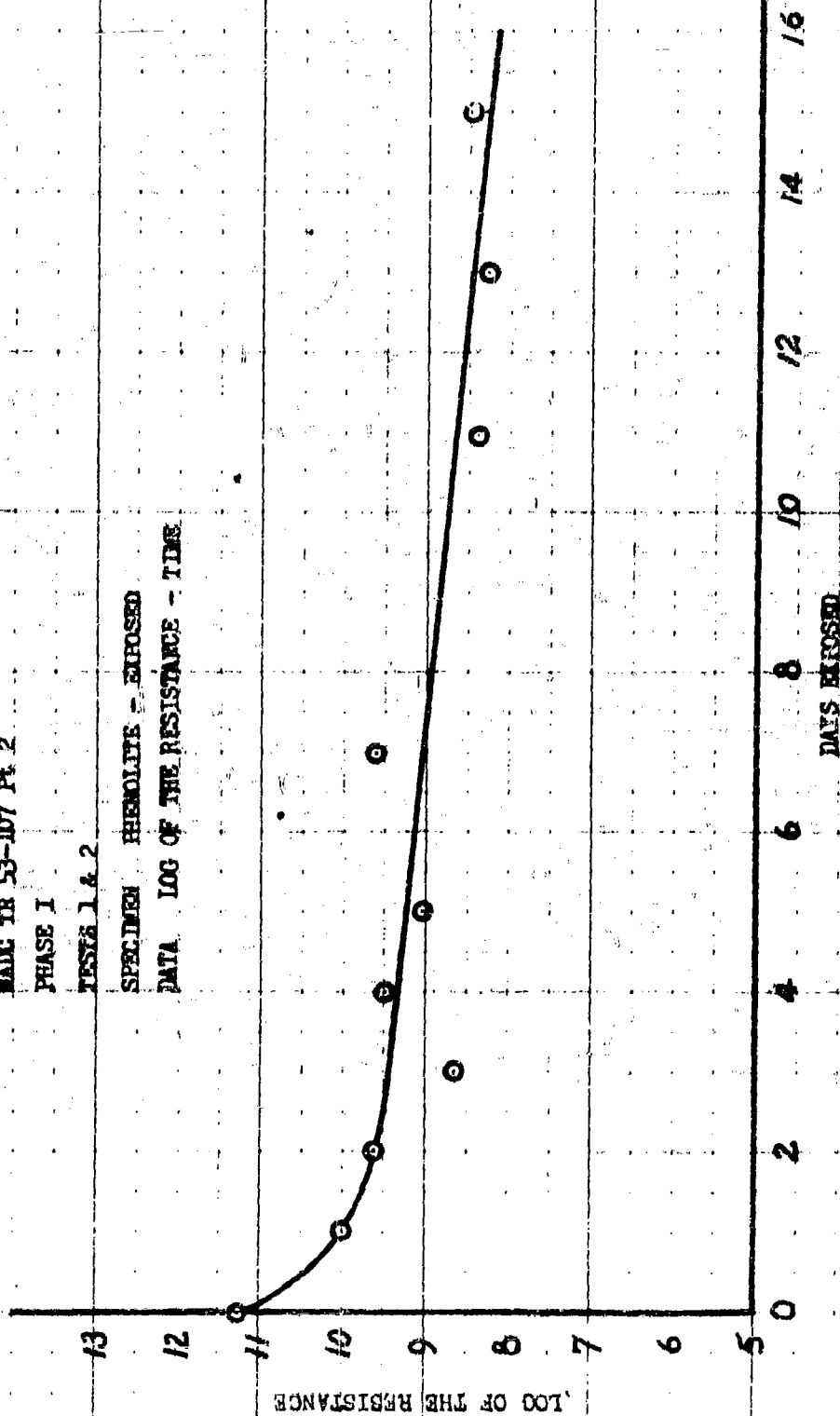


Figure 9

NO 144 SILCO GRAPH PAPER
4 1/4 PER INCH
GUARANTEED "ALL BAG PAPER"

SPALDING-MOSS COMPANY
BOSTON 18, MASS.
MADE IN U. S. A.

WADE TR 53-107 Pt 2

CORRELATION OF TEMPERATURE-HUMIDITY TESTS

WADE TR 53-107 Pt 2

PHASE I

TESTS 1 & 2

SPECIMEN PHENOLITE - ENCLOSED

DATA LOG OF THE RESISTANCE - TIME

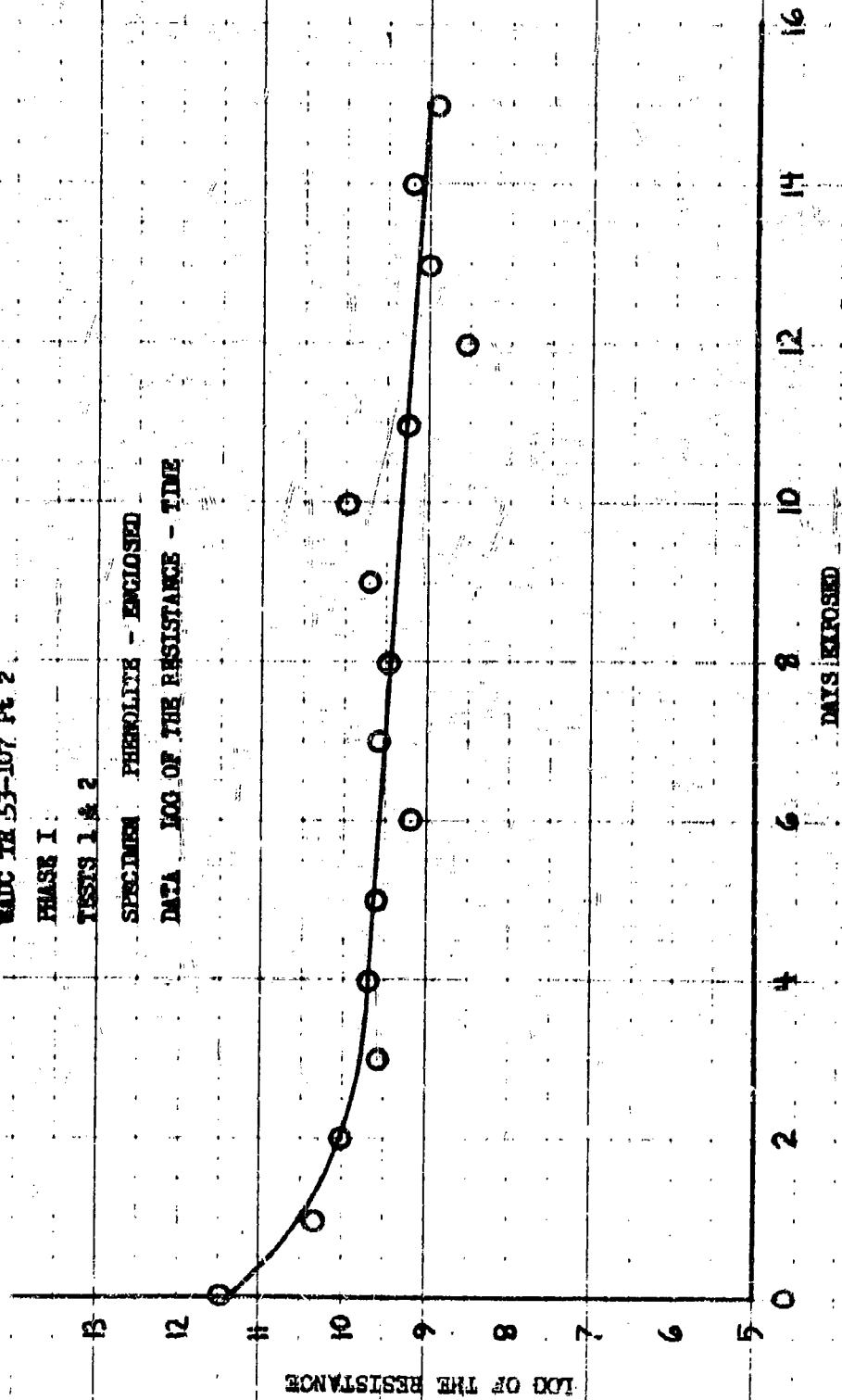
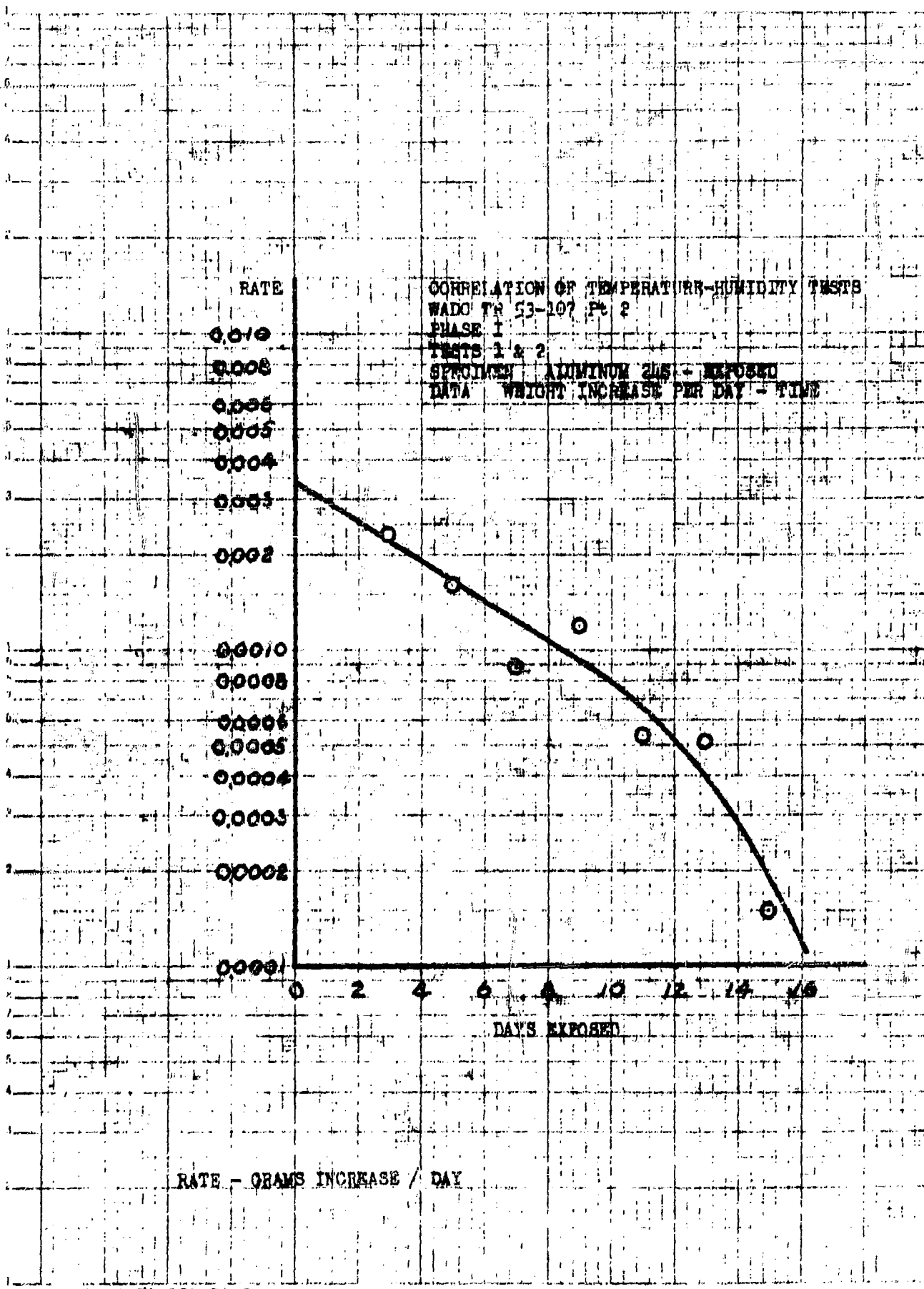
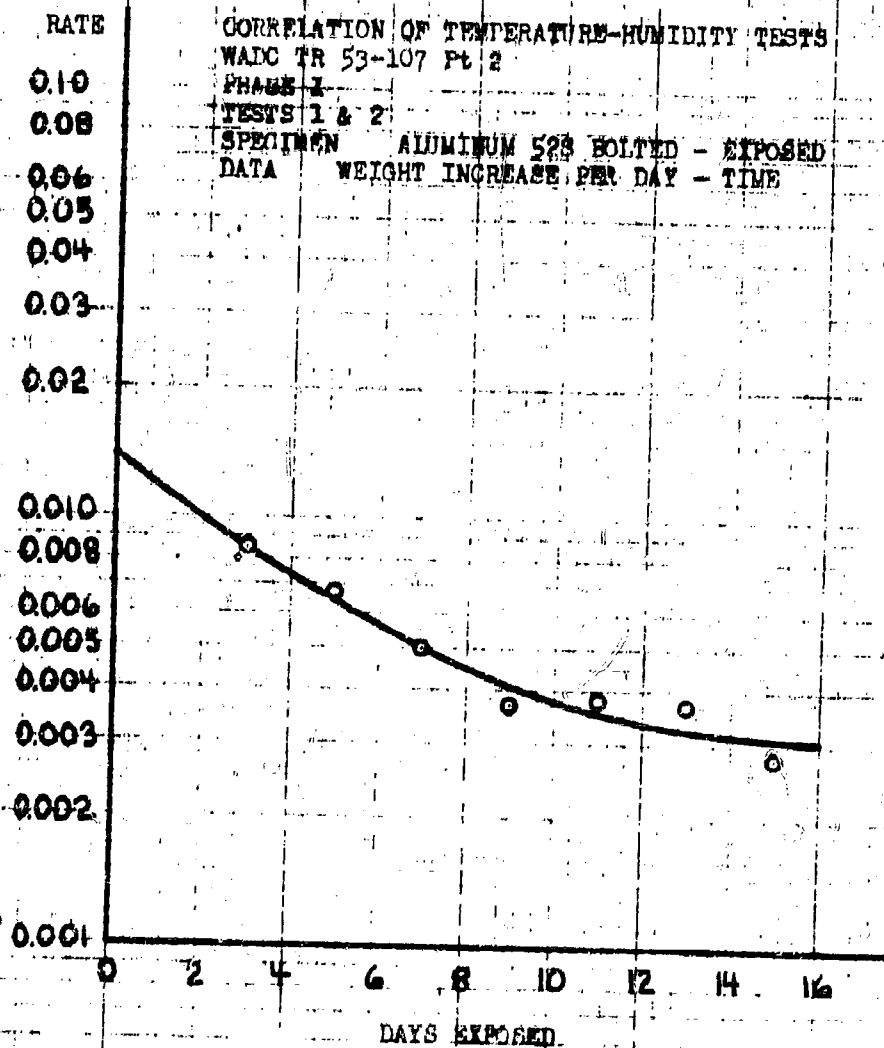


Figure 10

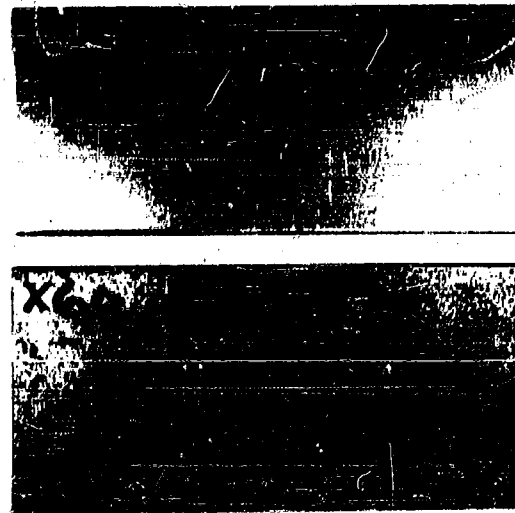
7



350-01 CRUZZEL & KESLER CO
San. Lab. 1000, 4000, 8000, 16000, 32000, 64000, 128000, 256000, 512000, 1024000, 2048000, 4096000, 8192000, 16384000, 32768000, 65536000, 131072000, 262144000, 524288000, 1048576000, 2097152000, 4194304000, 8388608000, 16777216000, 33554432000, 67108864000, 134217728000, 268435456000, 536870912000, 1073741824000, 2147483648000, 4294967296000, 8589934592000, 17179869184000, 34359738368000, 68719476736000, 137438953472000, 274877906944000, 549755813888000, 1099511627776000, 2199023255552000, 4398046511104000, 8796093022208000, 17592186044416000, 35184372088832000, 70368744177664000, 140737488355328000, 281474976710656000, 562949953421312000, 1125899906842624000, 2251799813685248000, 4503599627370496000, 9007199254740992000, 18014398509481984000, 36028797018963968000, 72057594037927936000, 144115188075855872000, 288230376151711744000, 576460752303423488000, 1152921504606846976000, 2305843009213693952000, 4611686018427387904000, 9223372036854775808000, 18446744073709551616000, 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RATE - GRAMS INCREASE / DAY



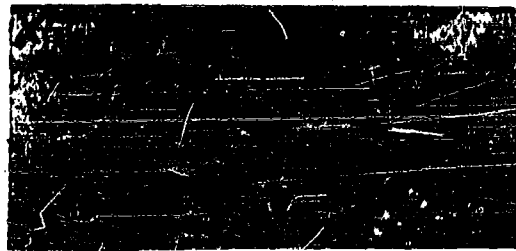
EXPOSED CONTROL
3-2-53 STEEL

FIG. 15 STEEL AFTER ONE
DAY EXPOSURE

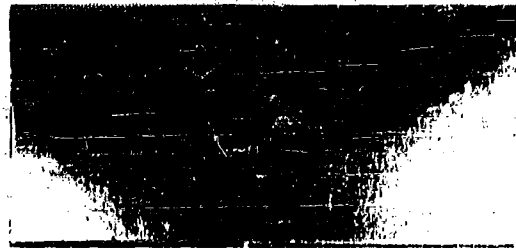


EXPOSED CONTROL
3-4-53 STEEL

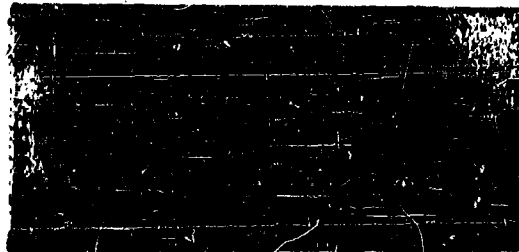
FIG. 16 STEEL AFTER THREE
DAYS EXPOSURE



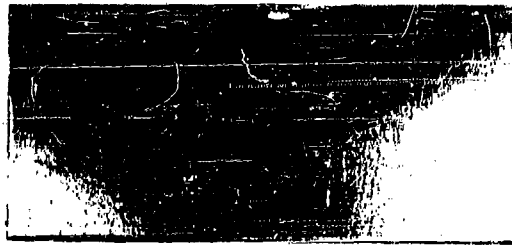
EXPOSED
3-6-53



CONTROL
STEEL



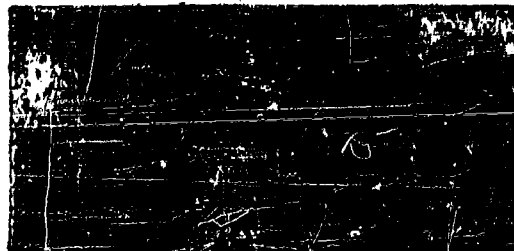
EXPOSED
3-8-53



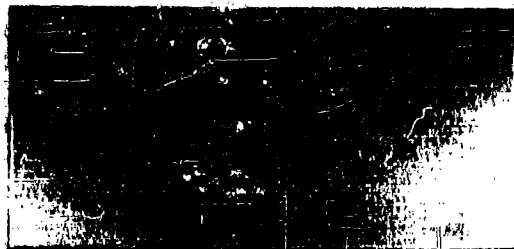
CONTROL
STEEL

FIG. 17 STEEL AFTER FIVE
DAYS EXPOSURE

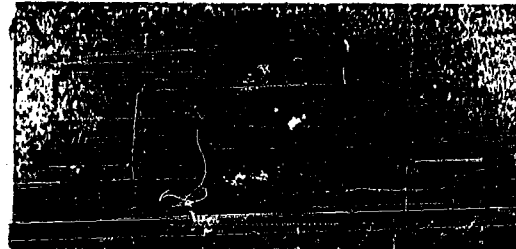
FIG. 18 STEEL AFTER SEVEN
DAYS EXPOSURE



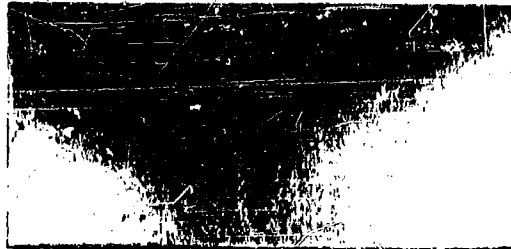
EXPOSED
3-10-53



CONTROL
STEEL



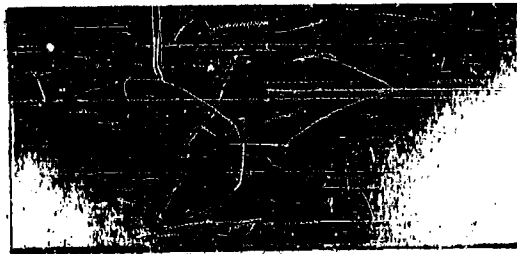
EXPOSED
3-12-53



CONTROL
STEEL

FIG. 19 STEEL AFTER NINE
DAYS EXPOSURE

FIG. 20 STEEL AFTER ELEVEN
DAYS EXPOSURE



CONTROL
STEEL

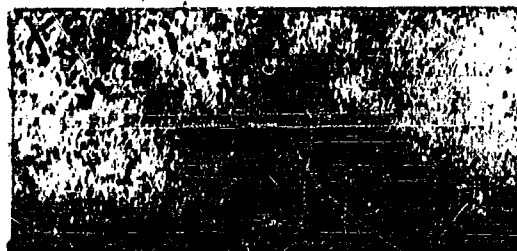


EXPOSED
3-10-53

FIG. 22 STEEL AFTER FIFTEEN
DAYS EXPOSURE

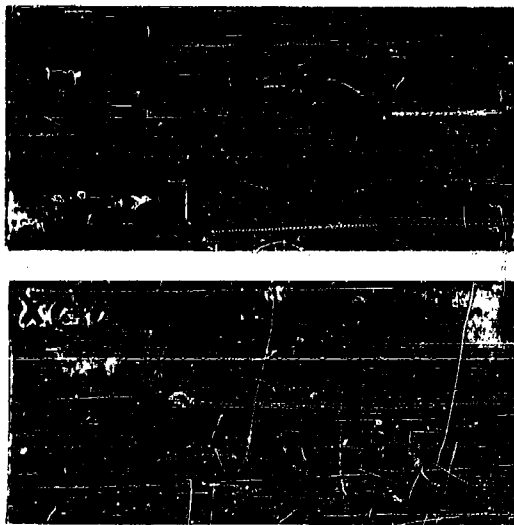


CONTROL
STEEL

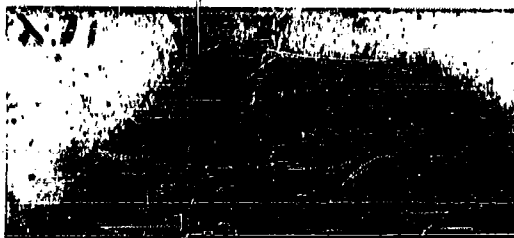


EXPOSED
3-14-53

FIG. 21 STEEL AFTER THIRTEEN
DAYS EXPOSURE



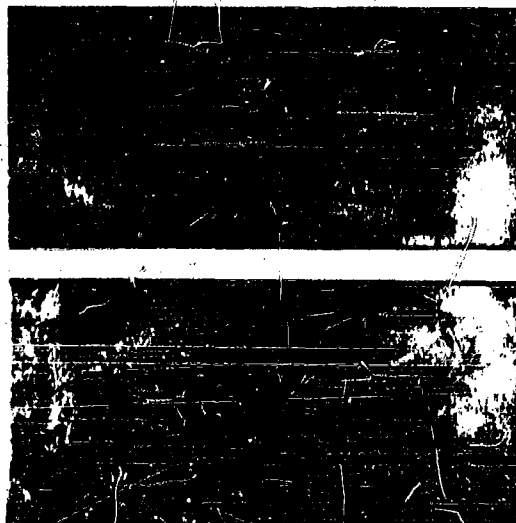
1 DAYS OF EXPOSURE
3-17-53 CLEANED STEEL



5 DAYS OF EXPOSURE
3-17-53 CLEANED STEEL

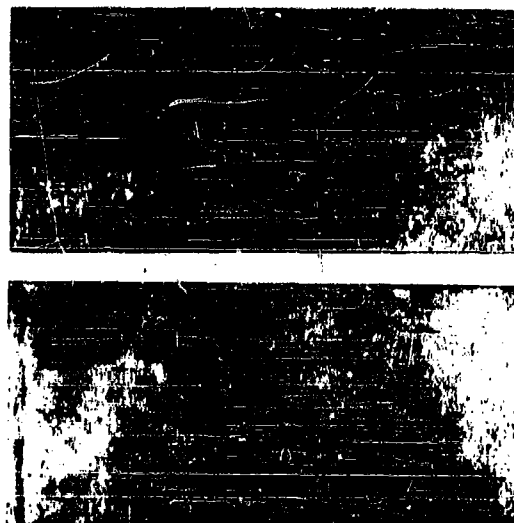
FIG. 23 STEEL AFTER REMOVAL
OF CORROSION

FIG. 24 STEEL AFTER REMOVAL
OF CORROSION



**10 DAYS OF EXPOSURE 11
3-17-53 CLEANED STEEL**

**FIG. 25 STEEL AFTER REMOVAL
OF CORROSION**



**14 DAYS OF EXPOSURE 15
3-17-53 CLEANED STEEL**

**FIG. 26 STEEL AFTER REMOVAL
OF CORROSION**

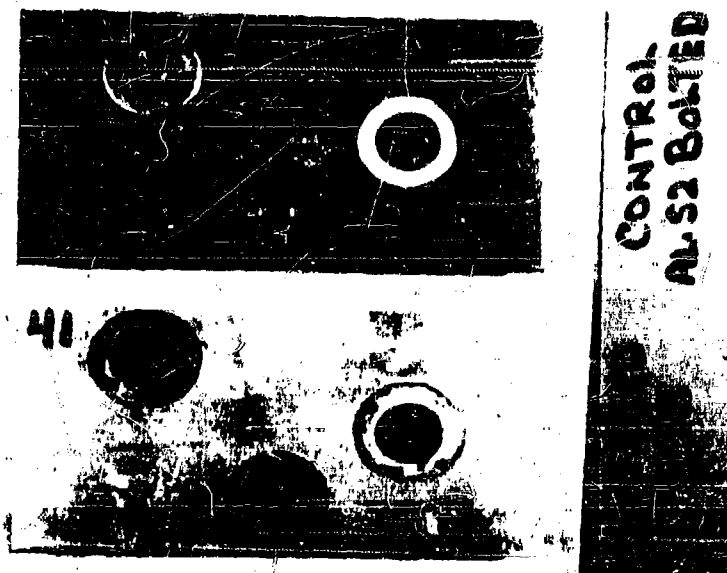


FIG. 28 BOLTED ALUMINUM AFTER
SEVEN DAYS EXPOSURE

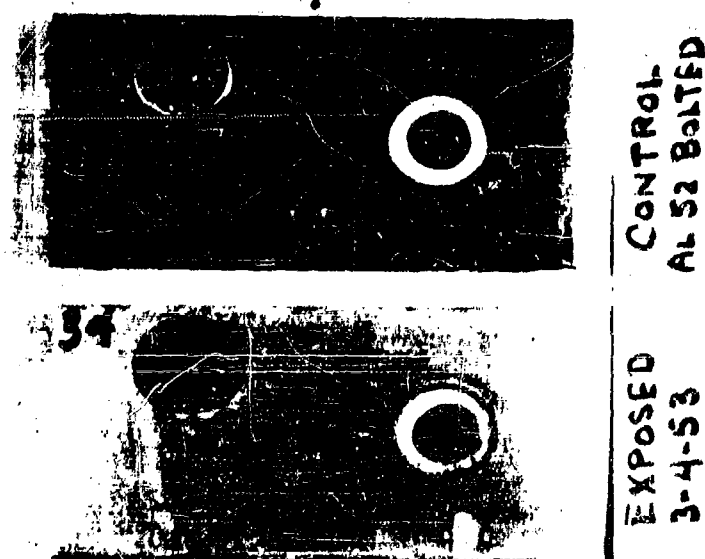


FIG. 27 BOLTED ALUMINUM AFTER
THREE DAYS EXPOSURE



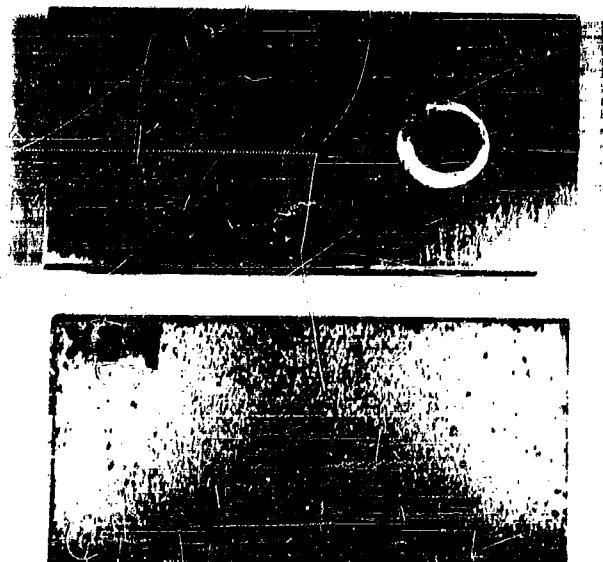
EXPOSED 3-16-53 CONTROL ALSO BOLTED

FIG. 30 BOLTED ALUMINUM AFTER FIFTEEN DAYS EXPOSURE



EXPOSED 3-12-53 CONTROL ALSO BOLTED

FIG. 29 BOLTED ALUMINUM AFTER ELEVEN DAYS EXPOSURE

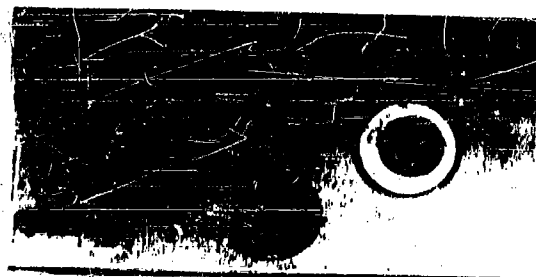


STEEL BOLTED AL
3-2-53 ENCLOSED

FIG. 31 ENCLOSED METALS AFTER
ONE DAY EXPOSURE

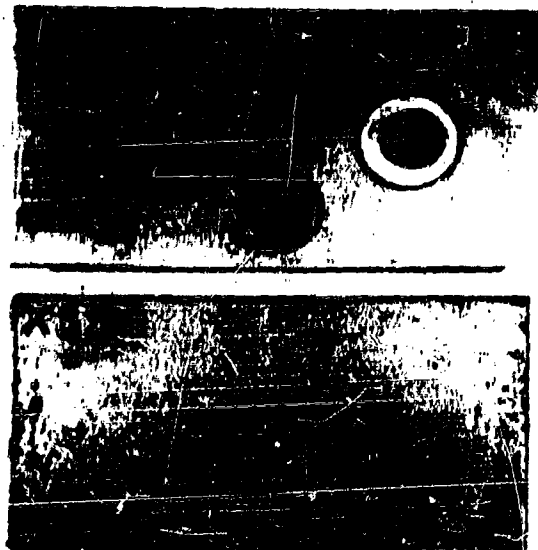


STEEL
3-4-53



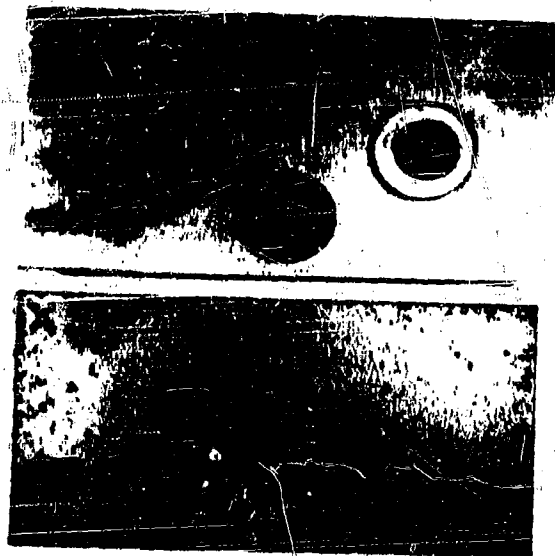
BOLTED AL
ENCLOSED

FIG. 32 ENCLOSED METALS AFTER
THREE DAYS EXPOSURE



STEEL 3-6-53
BOLTED AL
ENCLOSED

FIG. 33 ENCLOSED METALS AFTER
FIVE DAYS EXPOSURE



STEEL 3-8-53
BOLTED AL
ENCLOSED

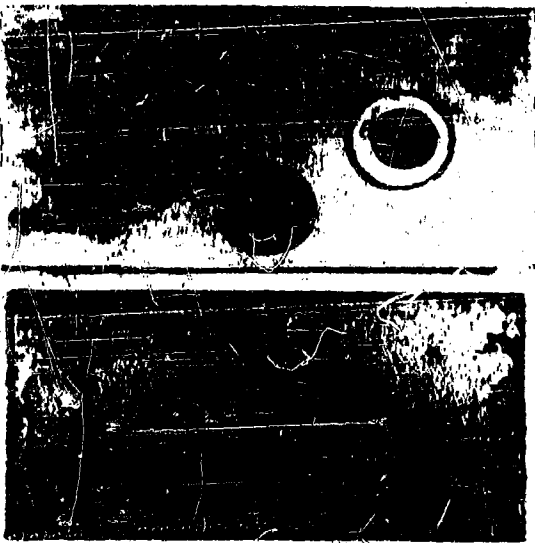
FIG. 34 ENCLOSED METALS AFTER
SEVEN DAYS EXPOSURE



STEEL
3-10-53

BOLTED AL.
ENCLOSED

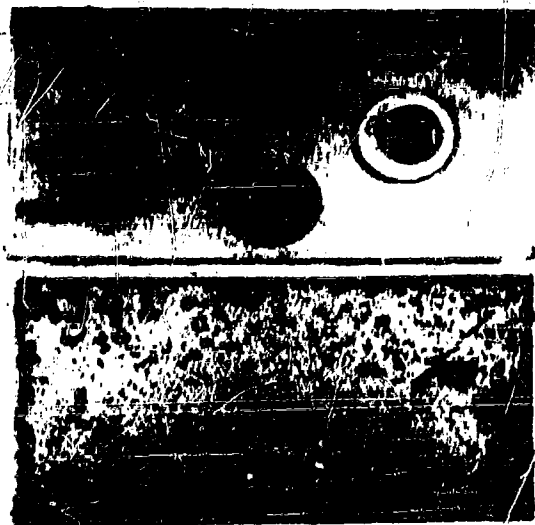
FIG. 35 ENCLOSED METALS AFTER
NINE DAYS EXPOSURE



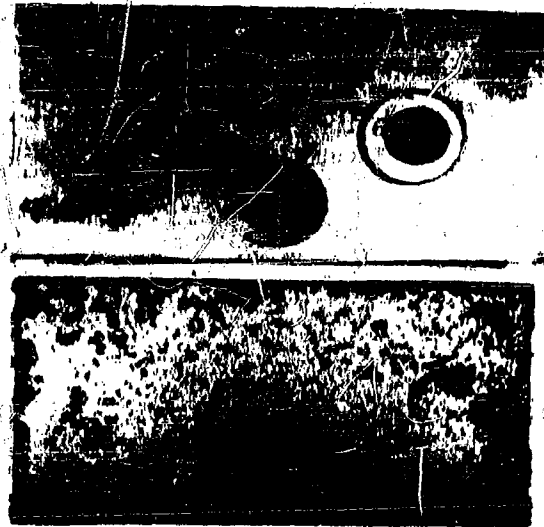
STEEL
3-12-53

BOLTED AL.
ENCLOSED

FIG. 36 ENCLOSED METALS AFTER
ELEVEN DAYS EXPOSURE



STEEL BOLTED AL
3-14-53 ENCLOSED



STEEL BOLTED AL
3-16-53 ENCLOSED

FIG. 37 ENCLOSED METALS AFTER
THIRTEEN DAYS EXPOSURE

FIG. 38 ENCLOSED METALS AFTER
FIFTEEN DAYS EXPOSURE

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